Herd management

WestfaliaSurge

Automatic Calf Feeder PREMIUM BOY/PREMIUM BIG BOY SA Combi
TAK5-SA2-KFA-27-F1-2VA/B-CS
TAK5-SA2-KFA-28-P1-2VA/B-CS
TAK5-SA2-KFA-30-P1-2VA/B-CS
TAK5-SA2-KFA-32-P1-2VA/B-CS
TAK5-SA2-KFA-38-P1-2VA/B-CS
(Stand Alone with CALFSCAN and concentrate feeder)

Instruction Manual

7163-9001-042

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1 Introduction

1.1 Icons Used in This Manual

The little graphic pictures that frequently appear in the margin of this book should give you a better overall view on the user's manual.

Attention: The exclamation point within an equilateral triangle is intended to alert you to follow the instructions contained in this manual in order to avoid injury and damage to persons, animals and appliance.

This icon is intended to signal you that here you can find important information and additional explanations on the operation of the automatic feeder.

You will find this icon next to examples in the user's manual.

This icon invites you to enter the figures into the corresponding menu.

This icon invites you to turn the program switch to the displayed position, in order e.g. to select the corresponding switch menu.

Icon for measuring cylinder for collecting and weighing the feed components.

Icon for scales used to weigh the feed components during calibration.

Icon for thermometer to measure the body temperature.

Icon for collar with identification system.

1.2 Safety Instructions

Read and understand the instruction manual and all safety instructions before using the equipment.

- Use the equipment only to feed calves.
- The equipment is to be serviced by trained and authorized personnel only.
- To facilitate servicing, store the instruction manual next to the equipment.
- Expert installation, correct handling, as well as careful care and maintenance are the prerequisits to ensure faultless functioning of the equipment.
- Incorrect data input may have serious consequences. Therefore, check the correctness of data input.
- The livestock owner is liable for a regular and scrupulous control of his animals and the functioning of the equipment. If, for any reasons, the system should break down or some calves should not make use of it, the livestock owner is liable for choosing other feeding methods for those animals.
- The manufacturer will not assume liability for injury, loss or damage, direct or consequential, of any kind from the use or inability to use the equipment.
- Remove any projecting objects from the calf house (e.g. pipe ends), because collars might get caught in them.
- You will find further safety instructions in the following chapters.

1.3 Safety Signs on the Automatic Feeder and the Concentrate Feeder

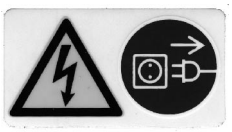
WARNING! Crush and cut hazard.

Moving parts starting automatically can **crush** and **cut**.

Keep hands and fingers clear before operating!

This sign is located on potential danger areas on the automatic feeder, such as the milk powder hopper, the milk powder outlet, the mixer as well as the outlet for powder additives on the additive dispenser. Moreover, this sign is also located on potential danger areas on the concentrate feeder.

Turn off and lock out power **before** carrying out any kind of operations on the above-mentioned parts.



DANGER! Electric shock hazard.

Hazardous voltage!

Contact may cause **electric shock, burn or death**.

This sign is located on potential danger areas on the automatic feeder, such as e.g. the power unit. Moreover, this sign is also located on potential danger areas on the concentrate feeder.

Turn off and lock out power **before** opening the power unit.

The power unit is to be opened and serviced by qualified electricians only.

1.4 Information Signs on the Automatic Feeder

Before connecting the **automatic feeder** to the **mains supply** and **activating** the **heating** (see chapter 6 „Installing the Automatic Feeder“, page 31), **read and understand** the **instruction manual**.

Any questions about this product? Then feel free to get in touch with us. Before calling us, please write down the information (machine type, machine number) on the nameplate located at the left of the feeder chassis, as well as the program version (refer to chapter „Menu 1-99, Machine data“).
Our address:
Förster-Technik GmbH,
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Tel. +49/(0)7733/9406-0,
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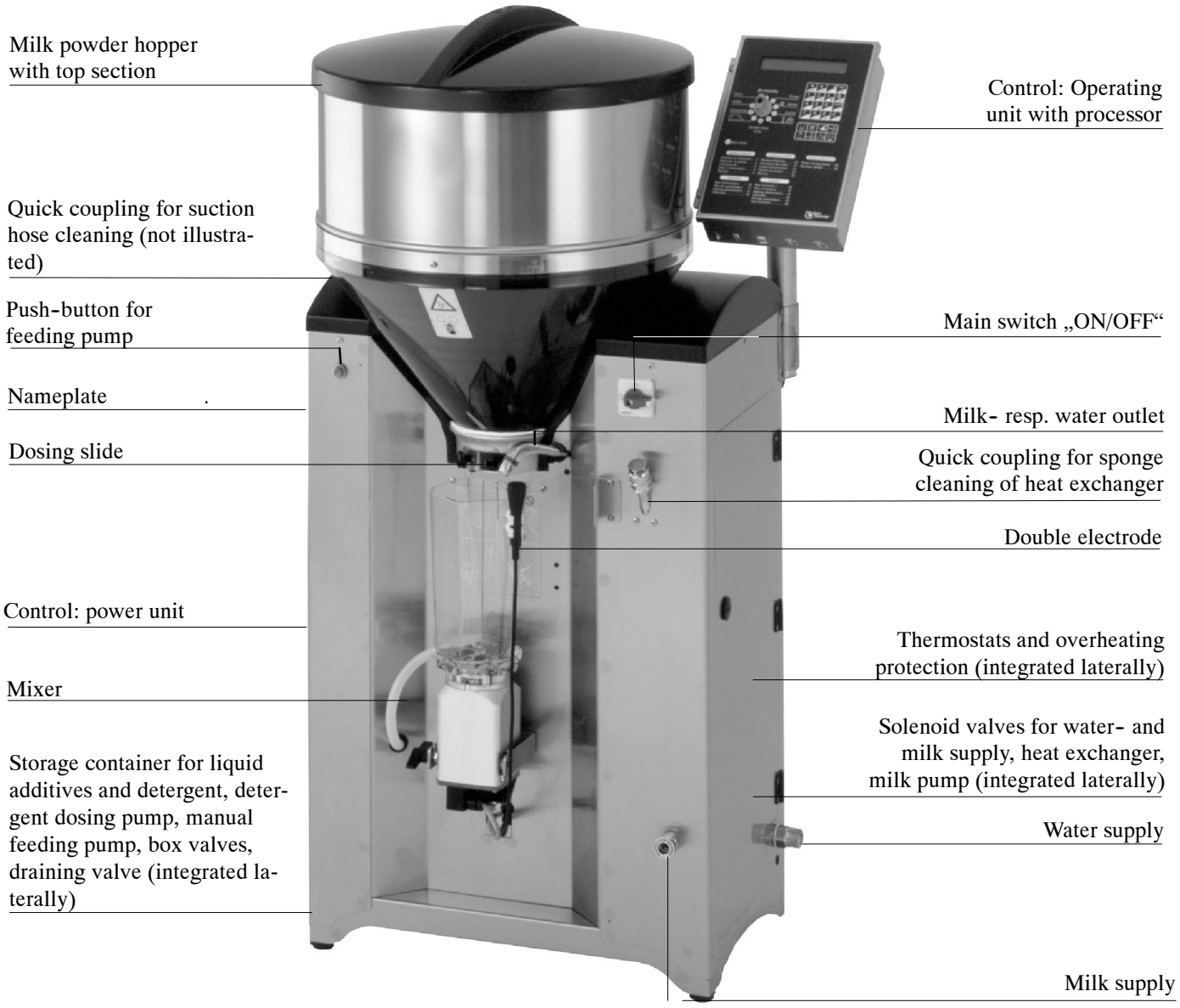
Internet: www.foerster-technik.de

1.5 Construction Parts Stand Alone Combi


Milk powder hopper with top section
Quick coupling for suction hose cleaning (not illustrated)
Push-button for feeding pump
Nameplate
Dosing slide
Control: power unit
Mixer
Storage container for liquid additives and detergent, detergent dosing pump, manual feeding pump, box valves, draining valve (integrated laterally)
Control: Operating unit with processor
Main switch „ON/OFF“
Milk- resp. water outlet
Quick coupling for sponge cleaning of heat exchanger
Double electrode
Thermostats and overheating protection (integrated laterally)
Solenoid valves for water- and milk supply, heat exchanger, milk pump (integrated laterally)
Water supply
Milk supply

Dimensions of the automatic feeder: height = approx. 1260 mm, width = approx. 720 mm, depth without additive dispenser = approx. 570 mm, depth with additive dispenser = approx. 660 mm.

1.6 Control of the Automatic Feeder

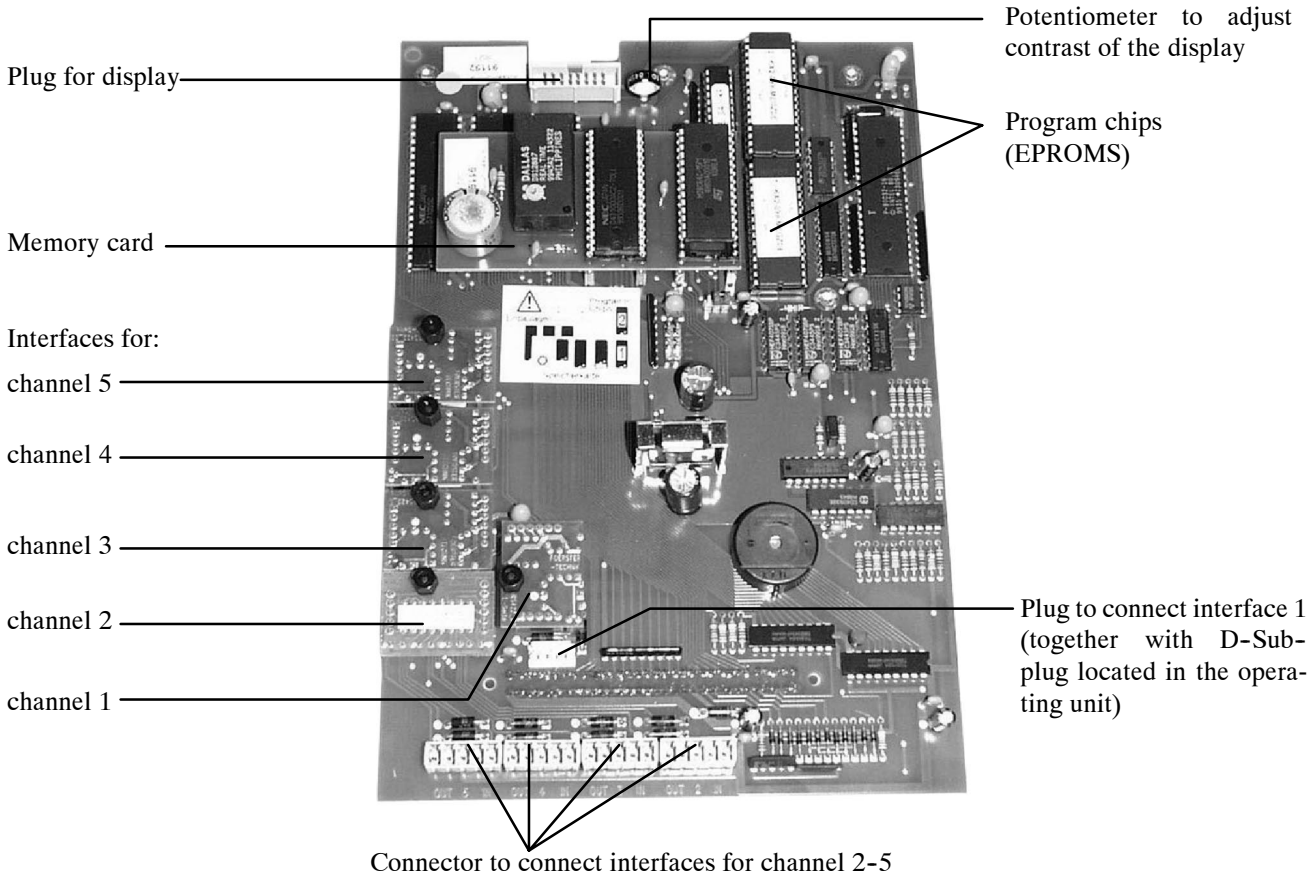
1.6.1 Operating and Control Unit (with Motherboard)

On the operating and control unit are located the following operating elements: program switch, keyboard, manual keys and display.

The boards for display, keyboard, distribution as well as the motherboard are located inside the operating and control unit of the automatic feeder. The motherboard represents the processor.

In case you do not use the connections located at the bottom of the operating unit, take care to close them by means of sealing covers.

The motherboard is hard-faced, among other things, with:
- interfaces for external components (PC/printer, animal scales in feeding box 1 + 2, concentrate 1 + 2, option)
- memory card to store all animal data
- 2 program chips

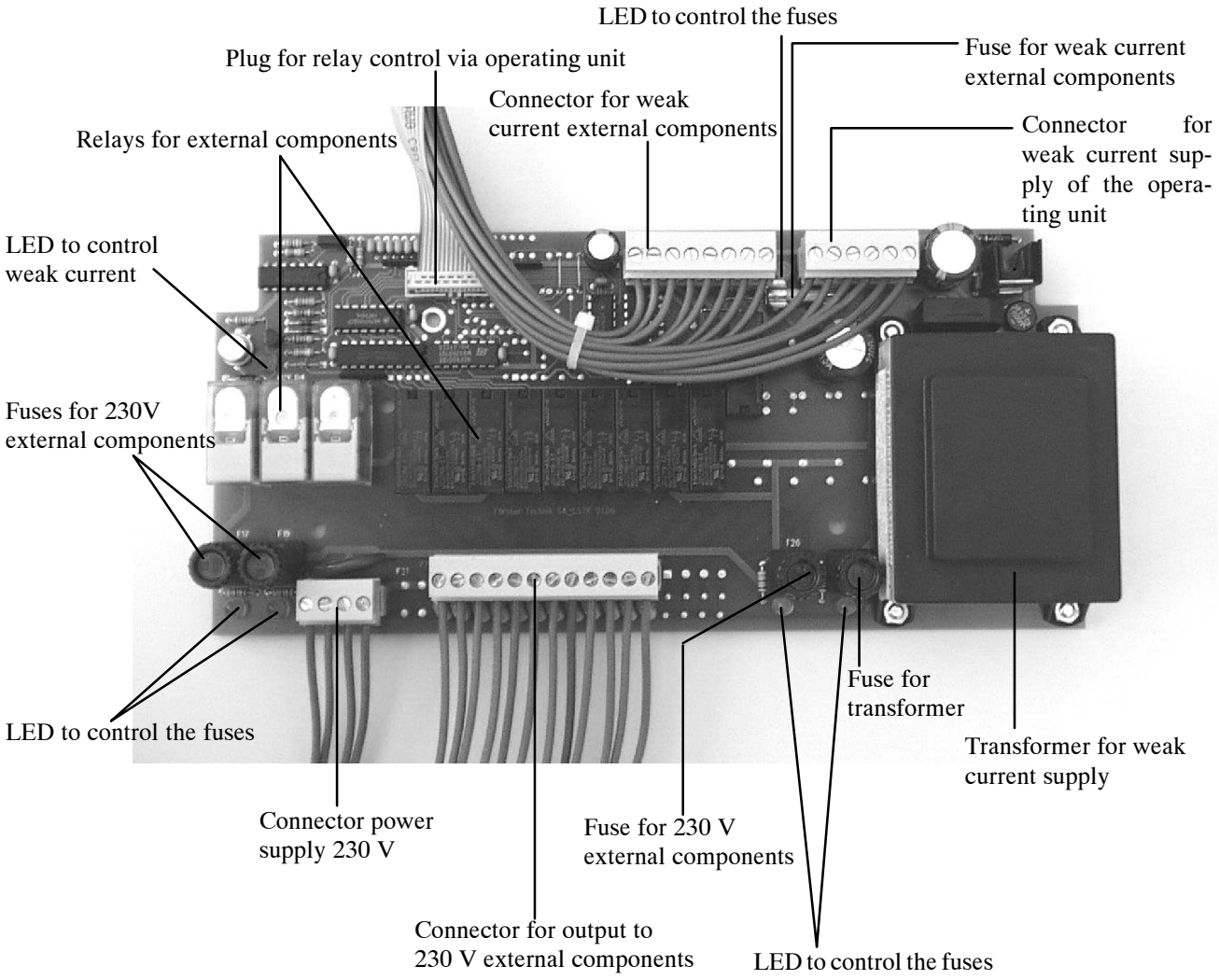


1.6.2 Power Unit Combi

Relay board as well as distribution board are located next to each other inside the power unit.

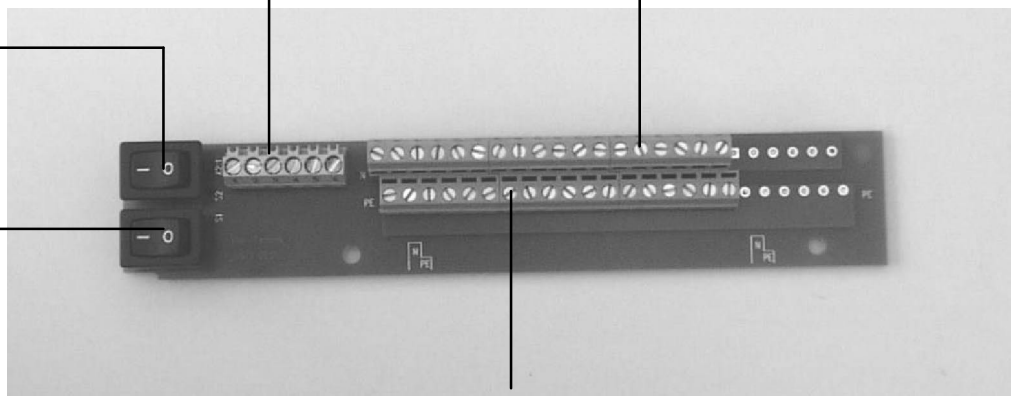
1.6.2.1 Relay Board

On the relay board are located the transformer for weak current supply of the processor control, the relays, the connectors for external components, the fuses and LEDs.

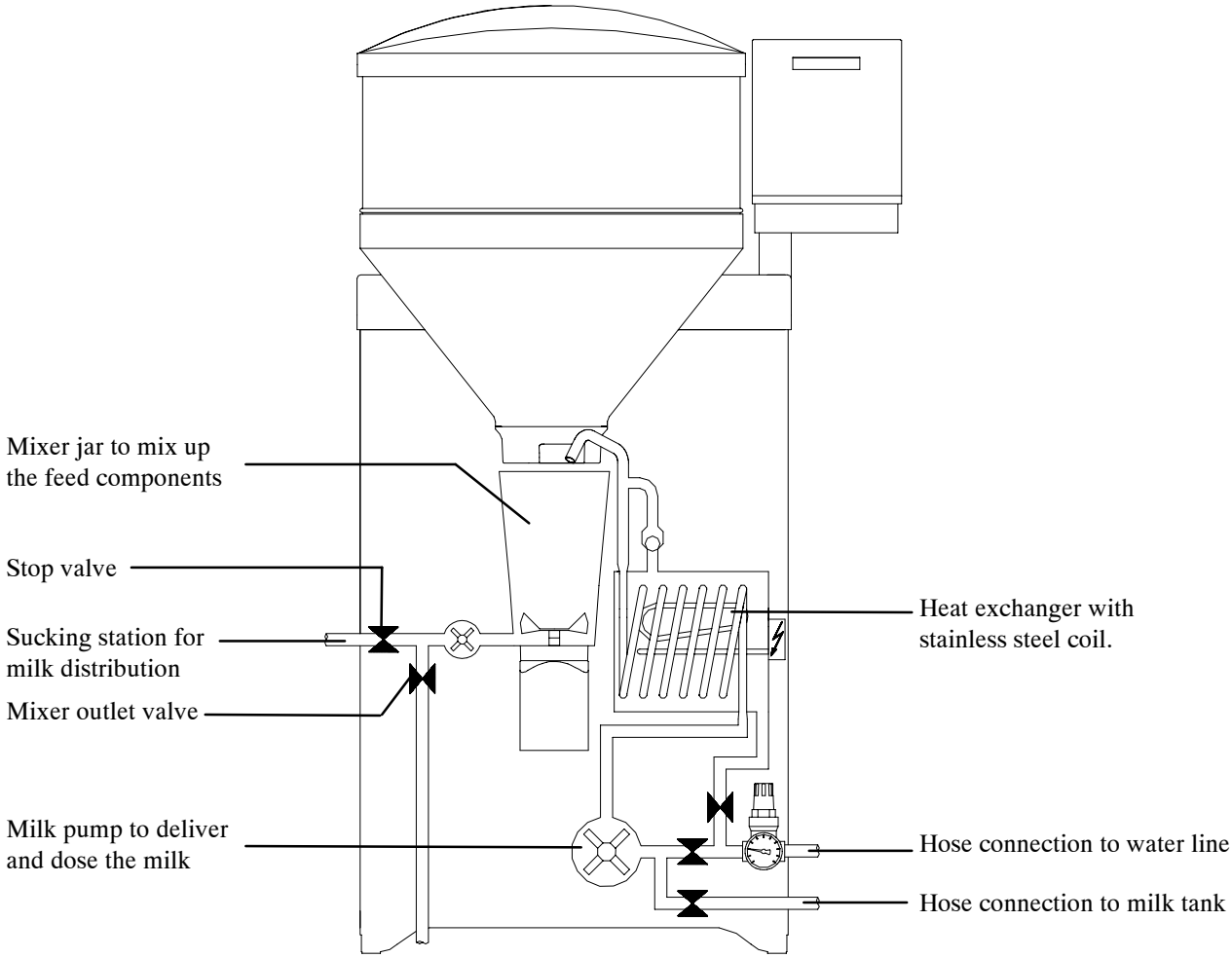

LED to control the fuses
Plug for relay control via operating unit
Fuse for weak current external components
Connector for weak current external components
Relays for external components
Connector for weak current supply of the operating unit
LED to control weak current
Fuses for 230V external components
Fuse for transformer
LED to control the fuses
Transformer for weak current supply
Connector power supply 230 V
Fuse for 230 V external components
Connector for output to 230 V external components
LED to control the fuses

1.6.2.2 Distribution Board

On the distribution board are located, among other things, two integrated switches. By means of the left switch you can switch on and off the heating of the milk powder outlet (vapour screen). By means of the right switch you can switch on and off the heating cable. See chapter 7.7, page 50, „Heating for Milk Powder Outlet and Protection against Frost“.


Distribution connector for neutral conductor (N)
Connector 230V for heating
ON/OFF switch for heating cable (optional)
ON/OFF switch for milk powder outlet heating (optional)
Distribution connector for protection conductor (PE)

1.7 Heat Exchanger with Separate Heating Circuits for Milk and Water


Mixer jar to mix up the feed components
Stop valve
Sucking station for milk distribution
Mixer outlet valve
Milk pump to deliver and dose the milk
Heat exchanger with stainless steel coil.
Hose connection to water line
Hose connection to milk tank

1.8 Accessories (not illustrated)

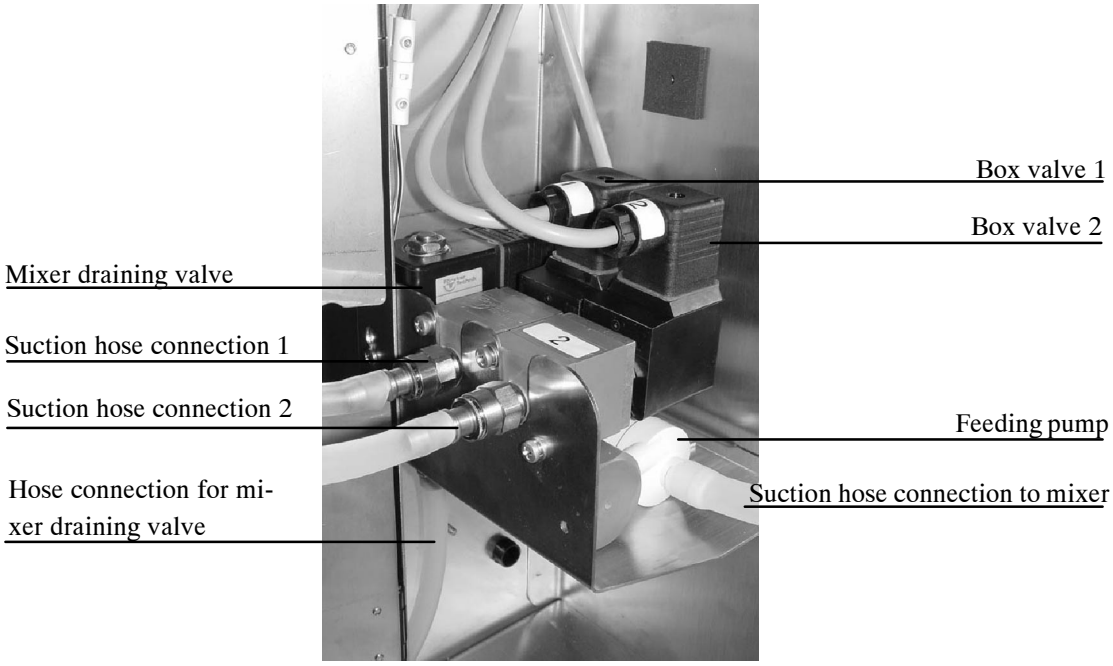
You will find a more detailed description of the accessories in chapter 19, page 151, „Accessories“.

- 2-Group-Valve-Unit
- Additive dispenser for powder **or** liquid additives
- Electrical vapour screen for milk powder or additive powder outlet
- Fully automatic heat exchanger cleaning for Combi or Fresh milk feeder consisting of:
  - circulation valve for cleaning cycle
  - detergent dosing pump
- Detergent dosing pump
- Fly protection door

1.9 Manual Feeding Pump

Thanks to the manual feeding pump calves may get easily accustomed to the teat. The feeding pump is located between mixer exit and feeding station. You can activate it by pushing a button at the lower side of the chassis or at the feeding station. The milk is then delivered directly from the mixer to the teat and into the mouth of the calf.

You can also use the feeding pump e.g. to drain off manually the rinsing water in the mixer jar via the mixer draining valve or the suction hoses.



Never clean the feeding pump by means of the cleaning sponge!

2 Technical Data of the Automatic Feeder

Please observe the information on the nameplate located at the left of the chassis!

Electrical Connection
TAK5-SA2-38-P1, TAK5-SA2-27-F1 (400 V)

230V / 400V / 3 / N / PE, 50 Hz, 16 A

TAK5-SA2-27-F1 (230 V)

230V / L / N / PE, 50 Hz, 16 A

TAK5-SA2-32-P1

230V / L / N / PE, 50 Hz, 20 A

TAK5-SA2-30-P1

200V / L1, L2 / Grd / 50/60 Hz, 20 A

TAK5-SA2-28-P1 (only for U.S.A. and Canada)

240V / L1, L2 / Grd / 60 Hz, 15 A

Water Connection

1/2“ hose with 3/4“ hose coupling.
The local water pressure has to be between 2,5 and 6 bar.

Heat exchanger

Boiler capacity: approx. 7 L.
Capacity of the stainless steel coil: 0,5 L

Milk powder hopper - storage capacity (with top section)

Approx. 35 kg

Number of feeding stations

An automatic feeder can feed 20 – 30 rearing calves or 15 – 20 fattening calves per feeding station. In case of two feeding stations an automatic feeder can provide approx. 50 – 60 rearing calves or 20 – 30 fattening calves or 20 rearing calves and 15 fattening calves with feed.

Technical data are subject to change without prior notice.

3 Locating the Automatic Feeder

3.1 Local Electrical Connection

- The local electrical connection must be installed by qualified electricians.
- Observe local regulations and protective measures. A fault-current circuit breaker (30 mA) in the local power supply is compulsory to operate the automatic feeder.
- The automatic feeder requires its own power supply: *refer to chapter 2, page 17, „Technical Data“*.
- Observe rated voltage and rated frequency. The rated voltage indicated on the nameplate of the automatic feeder must correspond to the one of the mains supply.
- In case of overvoltage risk, an overvoltage protector must be installed in the main distribution frame.

Equipotential bonding

For animals' safety and to prevent electrical interferences, carry out equipotential bonding of all metal parts such as water line, feeding station, race-way and automatic feeder. At the rear of the automatic feeder is located the connection screw for the equipotential bonding. It is imperative to connect this screw to a local earth plate, such as e.g. the earth circuit connector, by means of a short coupling.

Lightning protection

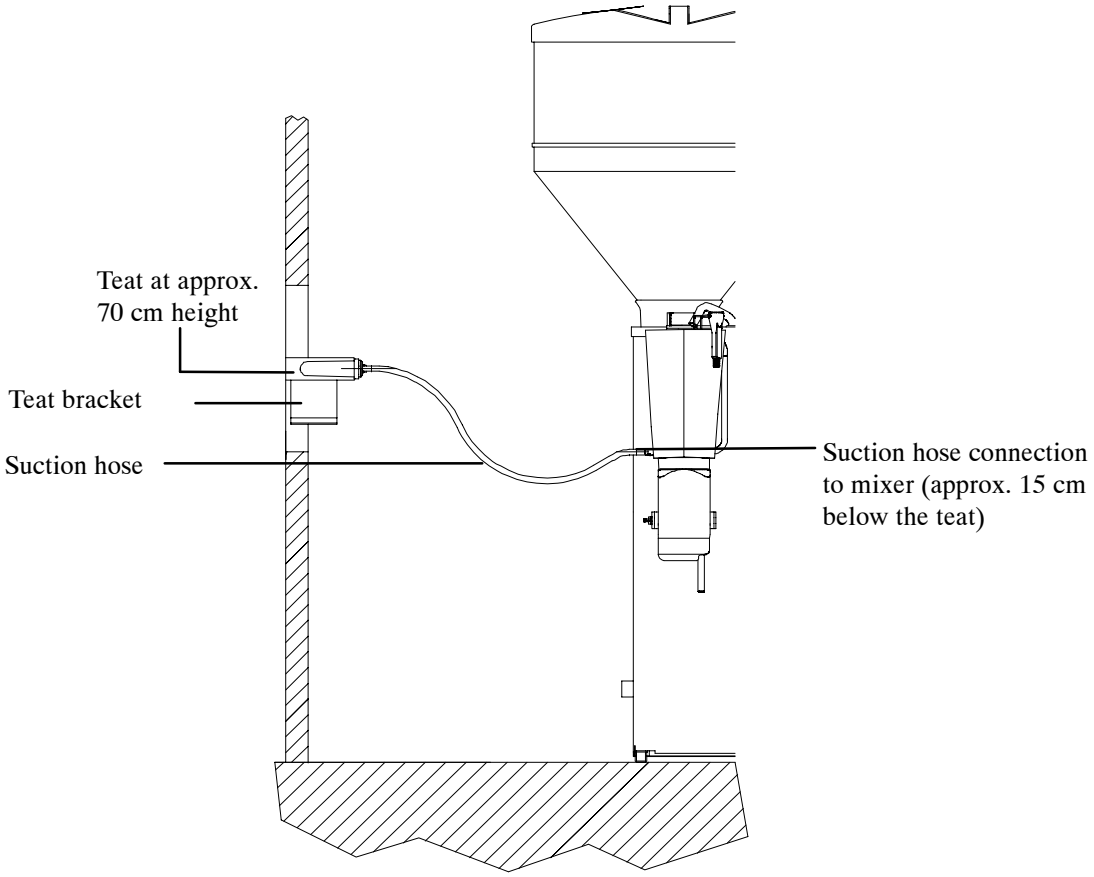
As it is technically impossible to protect the installation against lightning stroke separately, it is to the owner to install an adequate lightning protection, such as e.g. a lightning protection system for the entire building. We recommend to conclude a lightning protection insurance.

3.2 Locating the Automatic Feeder

- The automatic feeder has to be placed in a dry location, if possible not in the animal area (e.g. in the fodder storage or similar detached room).
- Mount a fence of planks to protect the automatic feeder against dirt and flies. In summer, when flies occur with increased frequency, you can use a large fly screen (accessory) to protect the mixer jar. Steam can easily escape through the openings of the fly screen grating.
- Make sure that the water supply of the automatic feeder is reliably constant.
- Frost does not cause any damages to the automatic feeder. In order to ensure a good functioning of the feeding process even in case of frost, you have to equip the automatic feeder with a protection against frost (accessory). The owner is responsible for a reliable water supply.
- The feed pipes can be easily guided through a wall.

3.3 Mounting the Feeding Station

- Install the feeding station max. 70 cm above the calf house ground.
  Mount the teat approx. 15 cm above the suction hose connection to the mixer.
- Fix the suction hose in such a way, that the mixer jar can be easily tipped in forward direction. The suction hoses should not exceed 2 meters length.
- Mount the teat bracket with splash board towards the bottom.



3.4 Mounting the Race-Way

Install an appropriate race-way in front of the feeding station resp. the concentrate feeder in order to prevent the animals from being pushed aside by other animals.

- Mount the race-way according to the mounting instructions.

3.5 Connecting Calfscan

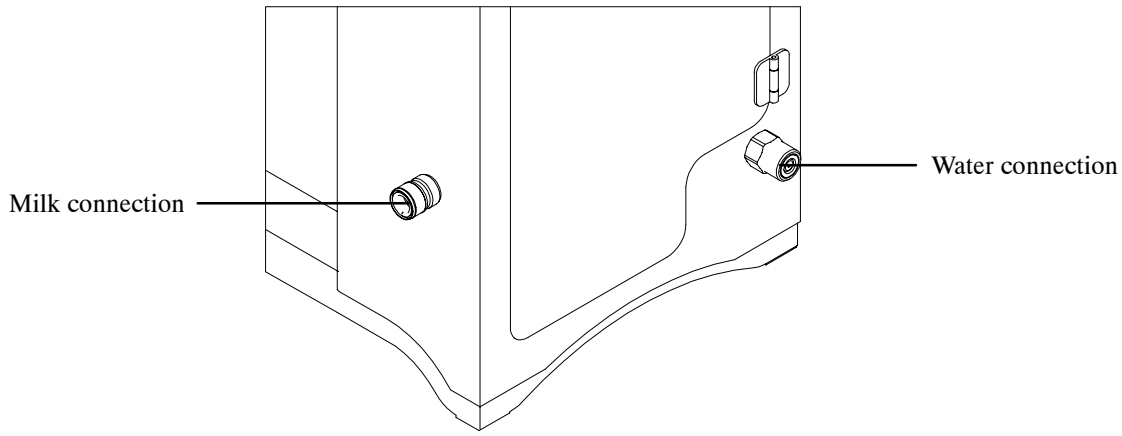
- Connect the micro-identification „Calfscan“ according to the mounting instructions.

Install the cable for the micro-identification „Calfscan“ in such a way that the animals cannot touch it.

- In case of Calfscan: carefully check up wiring and program chip. See I-plan.

Carry out the antenna test in order to check the identification range of the antennas (see chapter 7.8.3, page 52 ff, „Automatic Reading of the Responder Number and Antenna Test“). If identification errors occur, you can set the identification range of the antennas by the Squelch-value. If, in addition, a concentrate feeder is connected, you have to set the Squelch-value of the antenna in „Setup“. See chapter 7.3.1, page 36 ff, „Setup, Activating the Concentrate“.

3.6 Water and Milk Connection



3.6.1 Water Connection

- Connect the 1/2“ water hose to the 3/4“ hose coupling at the right of the automatic feeder.

The water pressure supplied by the customer has to be between 2.5 and 6 bar.

Note: To ensure troublefree functioning of the automatic feeder, take care that the water pressure does not fall below 2.5 bar!

Take care that there is no pressure variation of the water pipe.

In case of water pipes with small cross section it may happen that, in the feeding mode or when water is taken out of the same pipe simultaneously, the water pressure will drop.

If the water pressure is below 2.5 bar you have to use a water tank.

Install an additional water valve.

The pressure reducer is factory-set to 1.5 bar.

Do not alter the setting of the pressure reducer!

If you do not observe the above-mentioned notes, there is no guarantee that the automatic feeder will run trouble-free!

3.6.2 Milk Connection

Convey the milk from the milk storage tank straight to the automatic feeder. If long pipes are inevitable, use larger diameters.

Install the connection for the milk pipe at the bottom of the milk tank.

Air-containing pipes, very long and thin, as well as thin-walled pipes being prone to contract, lead to untimely switching-off or change-over of the system.

To avoid air bubbles, do not hang the milk hose into the milk tank from above.

The connections in the milk pipe have to be leakproof.

For hygienic reasons, avoid gross differences of diameter. Only use couplings easy to clean.

If the automatic feeder only operates in water mode, close the milk connection by means of a blind plug (part of the delivery).

4 Location and Installation of the Concentrate Feeder

- For location and installation of the concentrate feeder, refer to the instruction manual and the wiring diagram of „Codatron Junior“.

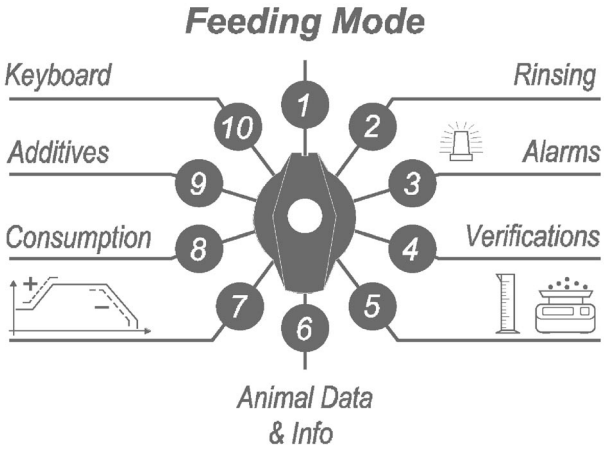
5 Operation and Operating Elements

5.1 Operating Elements

5.1.1 Program Switch and Switch Menu

Turn the program switch to select the switch menus (switch position 1 to 9).

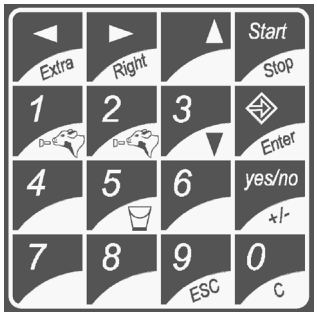
Switch Menu



5.1.2 Keyboard and Keyboard Menu

Turn the program switch to position 10 to select the keyboard menus. If the program switch is on position 2 – 10 the keyboard is active. If you press any active key, a bleep will be emitted.

Keyboard



You will find the keyboard menus at the lower part of the operating unit.

10 Keyboard Menu

Operating Functions

Machine Data 1
Restricted / Ad Libitum 2
Milk Functions 3
Accustoming Aid 4
Setup 5

Verification Functions

Alarm Levels 20
List Printing 21
Total Consumption 22
Power Failures 23
Scales 25

Delete Functions

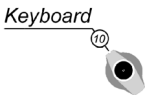
Feed Delay / Consumption .. 90
New Installation 99

Milk Feeding

Feeding Plan 10
Concentration Plan..... 11
Quantity Limits 15
Entitlement Intervals 16

Concentrate

Concentrate 1-Plan 40
Concentrate 2-Plan 41
Quantity Limits 42
Entitlement Intervals 44
Wean by Concentrate 45
Connection Test 49



Turn the program switch to position 10. The display shows:

```
     keyboard
input:
```

Enter the number of the desired menu. The number of the selected keyboard menu appears at the upper left of the screen.

```
5# setup          →
   concentrate ^
```

Double-Function Keys:

Double-function keys have two functions. The second function always appears at the lower right of the white key area. Depending on the menu, either the first or the second function will be active.

The following section is intended to describe the second functions:

„C“ is the deletion key. It is intended to delete e.g. the alarm animals.

The animal symbol on key 1 is assigned to box valve 1.

The animal symbol on key 2 is assigned to box valve 2.

Arrow Down „▼“ is used to scroll through the different submenus.

The bucket symbol is assigned to the mixer outlet valve.

If you activate the feeding pump simultaneously, the liquid in the mixer jar will be pumped off via the box valves and the feeding stations or the mixer outlet valve.

”Escape“ brings you back, step by step, to the menu.

”Extra” is used to dispense an extra-portion.

”Right” informs you about the feed entitlement of each individual animal.

The below-mentioned keys have the following additional functions:

The valves are either open until you close them by pressing the corresponding keys or they close automatically as soon as you turn the switch into another position.

Toggle keys:

Toggle keys reverse their function as soon as you press them. The display shows the function that is currently active. „Yes“ turns into „no“, „+“ into „-“. The memory is open or closed.

Horizontal arrow keys:

If the memory is closed (the cursor does not flash), press Arrow Right to move to the next screen and Arrow Left to return to the previous screen.

The little arrow at the lower right of the screen shows you that another screen is going to follow.

Vertical arrow keys:

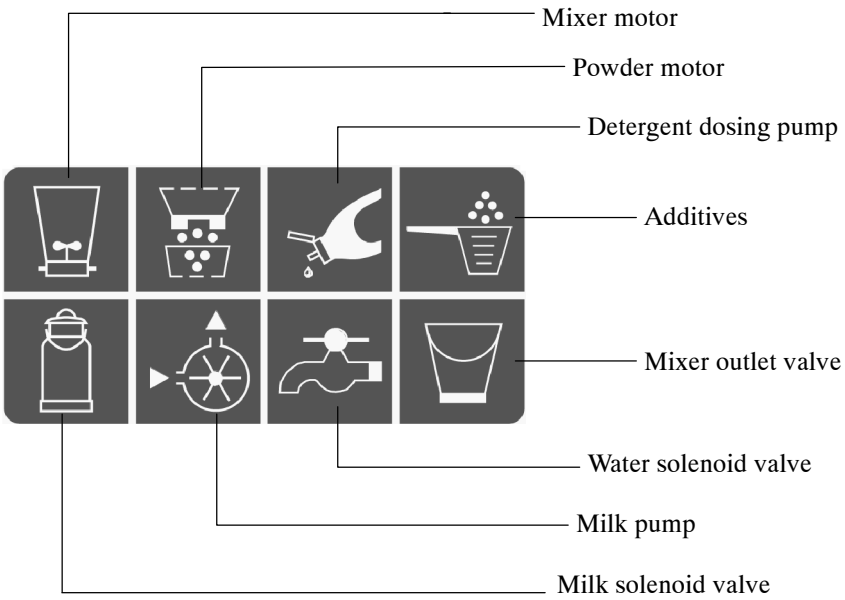
If the memory is closed, press the vertical arrow keys to view the available menus provided that you have previously selected the switch or keyboard menu.

These arrow keys are active when the display shows Arrow Up ▲

Arrow Up ▲ next to the animal number indicates that you can select the one higher or the one lower animal number. The same refers to selection of the animal groups A, B,C and D.

5.1.3 Manual Keys

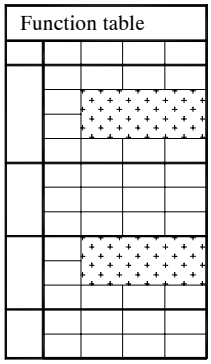
Press the manual keys in order to activate the corresponding functions regardless of the control.



In order to save the sealing, make sure that the mixer never runs without liquid!

5.2 Input Routine

- Keep the function table at your fingertips.



At the left of the function table „Switch Menu“ are listed the names of the main menus corresponding to the relevant position of the program switch. At the right of them are indicated the submenus and the corresponding messages displayed on the screen.

At the left of the function table „Keyboard Menu“ are listed the numbers you have to enter in order to move to the keyboard menus. The abbreviations used in the program are listed in alphabetical order at the lower part of the function table.

Turn the program switch to select the desired switch menu.

Press Arrow Up or Arrow Down to select the desired submenu.
The switch or keyboard menu contains the submenus written in columns and in vertical order. Arrow Up ^ on the display indicates that the switch menu consists of several submenus.

Press Arrow Right to select one after another all messages of the selected menu.
Arrow Right on the display shows that further screens are going to follow.

Press Arrow Up or Arrow Down to select the animal number or the group.
When the keys are active, the display shows the character ^.

You have to open the memory before making inputs (the cursor flashes). For this, press ENTER.

The memory for the input of numbers into the keyboard menu is already open. The cursor flashes. Enter the corresponding figure and confirm with ENTER. If a menu has several input possibilities, only open the first input area, the remaining areas will open automatically when you close the preceding one. Press ENTER to confirm all inputs.

If the memory is closed (the cursor does not flash), press ESCAPE to return to the beginning.

Press ESCAPE once again to return to the first screen of the menu.

5.2.1 Exercises Concerning the Switch Menus

Turn the program switch to 5 = calibration. The first submenu „Water boiler“ is displayed.

```
calibration      →
water boiler     ^
```

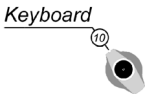
Press Arrow Up or Arrow Down to move to further submenus (Water HE, Milk, MP, Additives, Detergent).

```
calibration      →
water boiler     ^
```

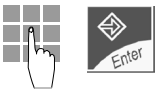
Press Arrow Right to move to the following screen.

```
water targ.:500ml →
measured:   ...ml
```

5.2.2 Exercises Concerning the Keyboard Menus



Turn the program switch to 10 = keyboard.

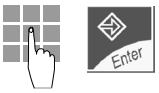


Enter 10 and press ENTER to confirm the inputs.

```
10# feeding plan
   group A ^     →
```

Go to the first screen and press ENTER. The cursor starts flashing.

```
10# A per.1  3 days
fr. 6.0 to 6.0 L →
```



Enter the duration of the feeding period. Press ENTER to confirm the input.

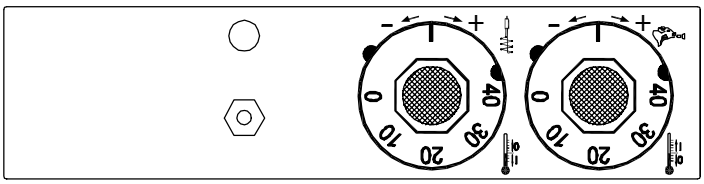
```
10# A per.1  6 days
fr. 6.0 to 6.0 L →
```

6 Start-Up

6.1 Connecting the Mains Plug

Warning: Before switching on the heating, fill up the heat exchanger, otherwise the boiler will be damaged. There will be no guarantee for a reliable functioning of the automatic feeder.

- Open the door on the right-hand side of the automatic feeder.
- Turn back both thermostats to zero and turn the main switch „ON/OFF“ to position „O“ in order to switch the automatic feeder off.



- Connect the mains plug and switch the automatic feeder on by turning the main switch to position „I“/„ON“.

Once you switched the automatic feeder on, the display briefly shows the program version.

6.2 Filling the Boiler of the Heat Exchanger with Water

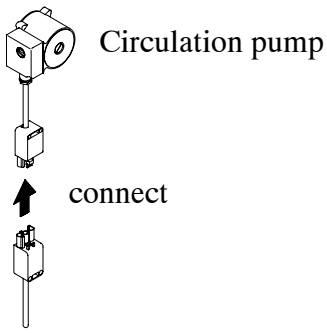
The automatic feeder in the Combi version has two water valves: the one leading to the boiler of the heat exchanger, the other one leading to the stainless steel coil. Press the manual key „Water“ in order to open the water valve to the boiler of the heat exchanger.

Take care that the boiler and the stainless steel coil are filled with water!

- Boiler: Keep the manual key „Water“ pressed until an air bubble-free water jet flows into the mixer jar. Only then the boiler is filled with water.
- Stainless steel coil: Press the manual keys „Water“ and „Pump“ simultaneously in order to open the water valve to the stainless steel coil located inside the heat exchanger. Press both keys until an air bubble-free water jet flows into the mixer jar. The water does flow into the mixer jar but the boiler is not filled with water.

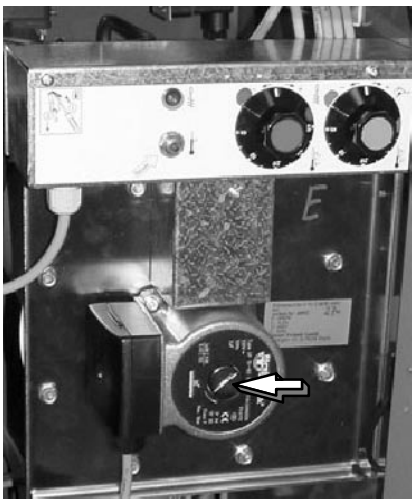
6.3 Dry-Running Protection for Circulation Pump (if available)

- Open the door on the right-hand side of the automatic feeder.
- Plug in the connecting plug of the circulation pump only after you have filled the heat exchanger with water.



6.4 Deaerating the Circulation Pump (if available)

- Remove the cover, loosen the deaeration screw and wait until some water comes out.



- Fasten the deaeration screw.
- Fix the cover.

After 1 – 2 days, deaerate the circulation pump once again.

6.5 Filling the Milk Powder into the Powder Hopper

- Only fill in milk powder that is suitable for calf feeding. Do not put paper or other foreign matter into the powder hopper.

There is no warning when the powder hopper is empty! The automatic feeder continues working in the feeding mode without milk powder.

6.6 Filling the Milk Storage Tank

The milk has always to be clean. Straw, hay or other foreign material reduce the operational reliability considerably.

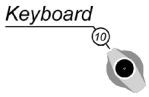
In case you should utilize cow milk and flaked milk, use a slow-running stirring device with intermittent action to avoid creaming of the milk. Continuously or fast running stirrers cause buttering. Animals getting too fat milk may suffer from digestive trouble.

Cool the milk or preserve it with formic acid (20 - 30 ml, concentration 10 % per liter milk). Do not feed the animals with milk starting to turn sour!

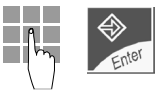
7 Basic Inputs during Installation

7.1 Checking Date and Time

When installing the automatic feeder first of all you have to check and, if necessary, change date and time in the keyboard menu „Machine Data“. Time goes on, even after the machine has been switched off.

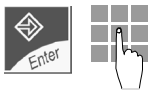


Turn program switch to 10 = keyboard.



Enter 1. Press ENTER to confirm the input.

```
1# date 17.07.03
time:   08:01:09
```



If necessary, press Enter to set date and time.

Press ENTER again to confirm the input.

After you have changed the date, turn the program switch to position „Feeding Mode“ in order to activate daily calculation *(see chapter 8.6, page 71, „Daily Calculation“)*.

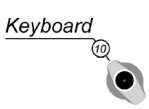
7.2 New Installation

When installing the automatic feeder you have to carry out the function „All new“ in keyboard menu „New installation“ in order to be sure that the memory does not contain any wrong data. The animal data are deleted and the operational data are overwritten by standard values.

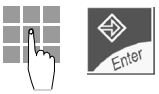
Animal data are e.g. group allocation, housing date, feeding days, total consumption etc.

Operational data are all non animal-specific data, like e.g. feeding plan, concentration plan. The standard values for operational data are empirical. You can change them at any time and bring them into line with individual requirements. *See chapter 9, page 72, „Altering the Work Data“*.

If you select „All New“ all exercises concerning input routine will be deleted.



Turn the program switch to 10 = keyboard.



Enter 99. Press ENTER to confirm the input.

```
99#new installation
all new ? no
```

Select „yes“ and press ENTER. All animal data are deleted and the operational data are overwritten by standard values.

```
99#newinstallation
all new ? yes
```

The display shows the following message:

```
instruction manual
read ? no
```

Select „yes“ and press ENTER to confirm the input.

```
instruction manual
read ? yes
```

After „New installation“ has been carried out, the message „finished“ appears in the second line of the display.

```
99#new installation
   finished
```

In this menu you can move to another screen. If the automatic feeder is running, you may recover the standard values of the automatic feeder at any time. All values modified manually, like e.g. feeding plans are deleted and overwritten by standard values. This process does not concern the animal numbers already entered.

Move to the next screen.

```
99#new installation
operat.data ? no
```

Select „yes“ and press ENTER to confirm the input. All operational data are deleted and overwritten by standard values.

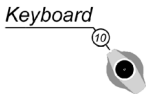
```
99#new installation
operat.data ? yes
```

7.3 Setup

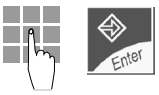
In Setup you can select the additional functions concerning concentrate, animal scales, heat exchanger and printing and enter the baud rate for the PC and the concentrate feeders. In addition, in this menu you can test the interfaces, register and cancel the feeding stations. In Setup you can also set the draining time.
If the Stand Alone is equipped with a fully automatic heat exchanger cleaning or/and a detergent dosing pump or/and a device for compressed air-cleaning, you have to select these functions in Setup, too.

As the program is menu-driven, all non-selected functions are not displayed and cannot be used. If e.g. you do not select the concentrate in Setup, the concentrate menus will not be displayed.

7.3.1 Activating the Concentrate



Turn program switch to 10 = keyboard.



Enter 5 and press ENTER to confirm the input. The display shows the menu „Concentrate“.

```
5# setup          →
concentrate ^
```

Press Arrow Right to move to the next screen of submenu „Concentrate“.

```
5# silo 1&2^      →
available   no
```

Press Arrow Up or Arrow Down to select the silo .

```
5# silo 1&2^      →
available   no
```

Enter „yes“ and press ENTER.

```
5# silo 1&2       →
available   yes
```

Select silo 1 and 2 if 1 Master station with a related Slave station are connected to the feeder. Select silo 3 and 4 if 2 Master stations with related Slave stations are connected to the feeder.

Press Arrow Right to go to the next screen.

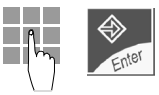
```
5# silo 1^        →
   C1
```

Press Arrow Up or Arrow Down to select the silo .

```
5# silo 1^        →
   C1
```

Press ENTER to select the desired concentrate type.

```
5# silo 1         →
   C1
```



Enter the concentrate type (1 or 2) allocated to the corresponding concentrate feeder and press ENTER to confirm the input.

```
5# silo 1         →
   C1
```

Press Arrow Right to go to the next screen and select the group.

```
5# dosing code    →
     group A^
```

Here you can select whether the concentrate has to be dispensed proportionately to the concentrate plan or the concentrate consumption.

```
5# dosing code  A →
     C-plan^  yes
```

Enter the concentrate amount to be dispensed by the screw-conveyor after the dosing flap has been released. You can select „C-plan“ or „C-consumption“.
C-plan: percentage of the concentrate amount to which the group is entitled at the present day according to the concentrate plan.
C-consumption: percentage of the average concentrate amount consumed during the last three days.

```
5# dosing code  A
of C-plan^  x,x%  →
```

Press Arrow Right to move to the next screen and set the input and reading sensitivity of the antennas. The higher the Squelch value, the lower the identification range of the antennas. Potential input: 0 to 200.

```
5# antenna-Squelch
concentrate  180  →
```

Press ENTER to confirm the input.

The antenna type is decisive for the identification range. In case of micro-identification „Calfscan“ you can set the range by the antenna-Squelch. The following table contains the Squelch values and identification ranges for the different Responders. These Squelch values are empirical and factory-set.

Responder	Squelch (Standard values)	Identification range
X-Responder	0	max. 25 - 30 cm
Ear tag-Responder	0	max. 25 - 30 cm
PM-Responder	180	max. 20 - 25 cm

The entered value is active, until you change it manually.

7.3.2 Setting the Baud Rate for PC and Concentrate Feeder

You have to set the same baud rate for the PC, as well as for the concentrate feeder. You can choose among the following transmission speeds: 19200, 9600, 2400 or 1200 baud. The standard value is 19200 baud. In case of electrical interference from the vicinity, it is advisable to reduce data transmission speed.

Press Arrow Up or Arrow Down to select menu „Set baud rate“.

```
5# setup          →
set baud rate      ^
```

Press Arrow Right to go to the next screen.

```
5# baud rate
19200 baud ^    yes
```

Press Arrow Up or Arrow Down to select the baud rate according to the utilized transmission speed.

```
5# baud rate
19200 baud ^    yes
```

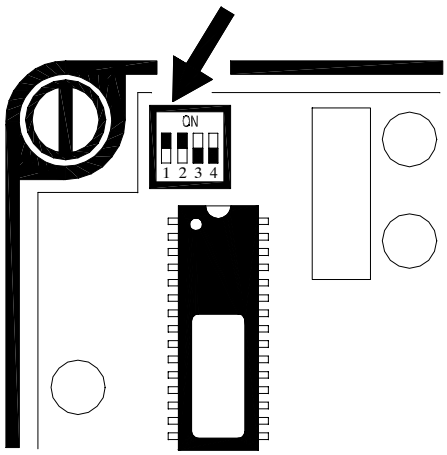
Press ENTER to confirm the input.

```
5# baud rate
19200 baud ^    yes
```

Standard value for baud rate: 19200 baud

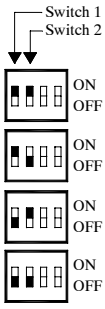
Set the transmission speed at the Master station of the concentrate feeders by means of the DIP switches.

The value entered into the Stand Alone feeder must correspond with the setting of the DIP switches at the concentrate feeder.



Master-Control (section)

Baud	Switch 1	Switch 2
19200	ON	ON
9600	ON	OFF
2400	OFF	ON
1200	OFF	OFF



7.3.3 Selecting the Printing Function

Press Arrow Up or Arrow Down to select menu „Printing“.

```
5# setup
printing ^
```

Press Arrow Right to move to the next screen.

```
5# print list     →
auto print  no
```

Select „yes“, in case the verification list should be printed automatically at midnight. Press ENTER to confirm the input.

```
5# print list     →
auto print  yes
```

Press Arrow Right to go to the next screen.

```
5# switch         →
pr.channel  0^  no
```

Press Arrow Up or Arrow Down to select the printer channel for the serial multiplexer (0-8).

```
5# switch         →
pr.channel  1^  yes
```

Enter „yes“ and press ENTER to confirm the input.

```
5# switch         →
pr.channel  1^  yes
```

An input is required only in case one or more Stand Alone feeders that are equipped with the PC-program „Kalb-Manager“ are connected to a printer via a serial multiplexer. In this

case you have to enter the corresponding output of the serial multiplexer that is connected to the printer. Printer channel 0 means that no serial multiplexer is connected.

7.3.4 Selecting the Animal Scales

Press Arrow Up or Arrow Down to select menu „Animal Scales“.

```
5# setup          →
  animal scales   ^
```

Press Arrow Right to move to the next screen.

```
5#anim.scales 1&2^→
   available no
```

Select the desired half-body scales. Enter „yes“ and press ENTER to confirm the input.

```
5#anim.scales 1&2^→
   available yes
```

You can connect one half-body scales (HS) per feeding station.

Press Arrow Right to go to the next screen.

```
5#anim.scales HS1 →
feeding box 1^ no
```

Press Arrow Up or Arrow Down to select the feeding station where the animal scales is located.

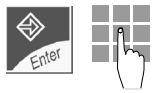
```
5#anim.scales HS1 →
feeding box 2^ no
```

If e.g. a half-body scales (HS) has been connected to feeding station 2, enter „yes“ and press ENTER to confirm the input.

```
5#anim.scales HS1 →
feeding box 2^ yes
```

Press Arrow Right to move to the next screen.

```
5#anim.scales HS1 →
weight factor 178%
```



Press ENTER. Enter the weight factor needed to calculate the total weight of an animal. Standard value: 178 %.

Press ENTER to confirm the input.

Press Arrow Right to move to the next screen. In this menu the tare value is automatically ascertained and set.

```
5#HS1 tare value
440 set ? start
```

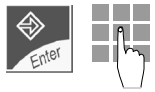
The processor will convert the electronic signals of the weighing cell of the animal scales into an indication of weight. This conversion factor (= tare value) is ascertained when putting a weight of approx. 50 kg on the animal scales.

Press Start/Stop, in order to tare the half-body scales.

```
5#HS1 tare value
tare ..............
```

After tare has been carried out, the display shows:

```
5#  50 kg put on
                start
```



Press ENTER. Enter the weight value used for weighing. Standard value: 50 kg.

Press ENTER to confirm the input.

Put a weight on the scales (in case of 50 kg e. g. two sacks of milk powder). Press Start/Stop once again. The display shows:

```
5#  50 kg put on
scales.............
```

The tare value is automatically set for the connected half-body scales. For example:

```
HW1 tare value
440 set? start
```

Press ENTER to confirm the indicated tare value.

In case the tare value should be checked once again, repeat the setting-routine for tare value. The ascertained tare value must correspond to the one determined before.

7.3.5 Carrying Out an Interface Test

If there is no communication between the concentrate stations, the printer, the PC or the animal scales, it is advisable to carry out an interface test. This test has to be carried out by Customer Service.

- Put the test connector on the motherboard. *See connecting diagram*.

Press Arrow Up or Arrow Down to select menu „Interface test“.

```
5# setup          →
interface test^
```

Press Arrow Right to go to the next screen.

```
interface
test  1^ chann. no
```

Use Arrow Up or Arrow Down to select channel 1-5.

```
interface
test  1^ chann. no
```

Enter „yes“ and press ENTER to confirm the input.

```
interface
test  1^ chann. yes
```

7.3.6 Registering and Cancelling the Feeding Stations

In this menu you can register and cancel feeding stations and enter the draining time (time between release of the electrode at the final portion and closing of the corresponding box valve) for each station.

Press Arrow Up or Arrow Down to select menu „Boxes“.

```
5# setup          →
   boxes^
```

Press Arrow Right to go to the next screen.

```
5# box no.   1^
available  ? yes
```

Select feeding station 1 or 2.

```
5# box no.   1^
available  ? yes
```

Enter „no“ to cancel the feeding station and press ENTER to confim the input.

```
5# box no.   1^
available  ? no
```

Enter „yes“ to register the feeding station and press ENTER to confirm the input.

```
5# box no.   1^
available  ? yes
```

The feeding stations 1 and 2 are registered as a standard (yes).

If the milk is delivered over a long distance, it is useful to prolong draining time. This ensures that the mixer jar is entirely emptied after the last portion has been consumed.

Press Arrow Right to move to the next screen.

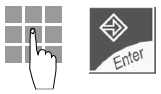
```
5# draining time
box 1^: 16 sec.
```

Select feeding station 1 or 2.

```
5# draining time
box 1^: 16 sec.
```

Press ENTER to confirm the input.

```
5# draining time
box 1^: 16 sec.
```



Enter draining time in seconds and press ENTER.

```
5# draining time
box 1^: 20 sec.
```

Standard value for draining time: 16 seconds. Potential input: 10 to 60 seconds.

7.3.7 Portion

Distribution pause

The distribution pause regulates milk distribution. As soon as the automatic feeder starts to prepare the milk, the stop valve or the two-group valve unit close for the duration of the entered distribution pause. Set a distribution pause only if you utilize not readily soluble milk powders or in case of very high concentrations (> 200 g/L) and extreme drinking speeds (> 2 L/min).

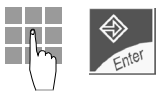
To ensure that the animals are fed as soon as they enter the feeding station, the first milk portion is distributed without taking the distribution pause into account. After the last portion has been distributed to the animal, the valve closes only at the end of the entered draining time.

Press Arrow Up or Arrow Down to select menu „Distribution Pause“.

```
5# setup          →
   distrib. pause ^
```

Press Arrow Right to move to the next screen. Press ENTER to open the memory.

```
5# distrib. pause
       0 sec.
```



Enter the desired distribution pause. Potential input: 0 to 16 seconds.

```
5# distrib. pause
       7 sec.
```

Press ENTER to confirm the input.

Mixer run time

In submenu „Mixer run time“ you can extend the standard mixing time by up to 16 seconds. How long and whether mixer run time should be extended depends on milk powder’s solubility.

Press Arrow Up or Arrow Down to select menu „Mixer run time“.

```
mixer run time
           +0 s
```

Enter mixer run time (potential input: 0 to 16 seconds).

```
mixer run time
           +6 s
```

7.3.8 Heat Exchanger

If the automatic feeder is not equipped with a device for fully automatic heat exchanger cleaning, in this menu you can deactivate this function as described below. The functioning of automatic cleaning is described in chapter 14.2, page 128, „Rinsing, Heat Exchanger“.

Press Arrow Up or Arrow Down to select menu „Heat Exchanger“.

```
5# setup          →
heat exchanger    ^
```

Press Arrow Right to move to the next screen.

```
5#heat exchan. with
autom. clean. ? yes
```

Enter „no“ if the automatic feeder is not equipped with a device for fully automatic heat exchanger cleaning. Press ENTER to confirm the input.

```
5#heat exchan. with
autom. clean. ?  no
```

Press Arrow Right to move to the next screen.

```
5# sep.heat circ.^
with pump ?   yes
```

Press Arrow Up or Arrow Down to select the heat exchanger with separate heating circuits with or without pump.

Enter „no“ if the automatic feeder is not equipped with a heat exchanger with circulation pump. Press ENTER to confirm the input.

```
5# sep.heat circ.^
without pump ? yes
```

7.3.9 Deactivating the Detergent Pump

If the automatic feeder is not equipped with a detergent dosing pump, you have to deactivate it in Setup.

Press Arrow Up or Arrow Down to select menu „Detergent Pump“.

```
5# setup          →
   detergent pump ^
```

Press Arrow Right to move to the next screen.

```
5#detergent pump  →
  available ? yes
```

Enter „no“ if the automatic feeder is not equipped with a detergent pump. Press ENTER to confirm the input.

```
5#detergent pump  →
  available ? no
```

Enter the detergent amount in switch menu 2 = rinsing, submenu „Settings, Cleaning Settings, Detergent“.

7.3.10 Activating Compressed Air-Cleaning

If the automatic feeder is equipped with a device for compressed air-cleaning, make sure that you have activated it in Setup.

Press Arrow Up or Arrow Down to select menu „Air Cleaning“.

```
5# setup          →
   air cleaning   ^
```

Press Arrow Right to go to the next screen.

```
5# air cleaning   →
 available ?  no
```

If the automatic feeder is equipped with a device for compressed air cleaning, enter „yes“ and press ENTER to confirm the input.

```
5# air cleaning   →
available ?   yes
```

7.3.11 Institute

Press Arrow Up or Arrow Down to select menu „Institute“.

```
5# setup          →
   institute      ^
```

Press Arrow Right to move to the next screen.

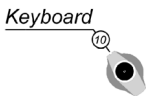
```
5# institute
 available ?  no
```

Enter „yes“ if a PC for the evaluation program is connected. Press ENTER to confirm the input.

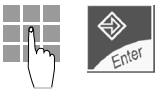
```
5# institute      →
available ?   yes
```

7.4 Connection Test towards the Concentrate Feeder

Carry out a connection test after expert installation of the cable that connects the Stand Alone to the concentrate feeders.



Turn program switch to 10 = keyboard.



Enter 49 and press ENTER to confirm the input.

```
49#connection test▶
```

Press Arrow Right to go to the next screen.

```
49# silo 1&2 test ▶
connection  no
```

Select „yes“ and press ENTER to confirm the input.

```
49# silo 1&2 test ▶
connection  yes
```

Move to the next screen.

```
49# silo 3&4 test ▶
connection  no
```

Select „yes“ and press ENTER to confirm the input.

```
49# silo 3&4 test ▶
connection  yes
```

If the connection e.g. to the silos 1 & 2 is o.k., the display shows:

```
49# silo 1&2 test
connection ok
```

In case of connection fault, check the connecting cable towards the concentrate feeder as well as the power supply of the stations. *See wiring diagram*.
If necessary, carry out an interface test. S*ee chapter 7.3.5, page 40, „Setup, Carrying out an Interface Test“*.

```
49# silo 1&2 test
connection error !
```

7.5 Calibration

7.5.1 Calibrating Water, Milk, MP and Detergent

Calibration is defined as the input into the computer of the amount of water, milk , MP and detergent dispensed during a specific time.

Turn the program switch to 5 = calibration.

```
calibration      →
water boiler     ^
```

Select submenu „Water Boiler“, „Water HE“, „Milk“, „MP“ or „Detergent“.

```
calibration      →
water boiler     ^
```

Hereinafter we will exemplarily describe how to calibrate boiler water:

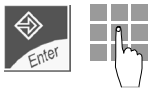
Press Arrow Right to go to the next screen.

```
water targ.: 500 ml
measured:    ... ml
```

Hold an empty measuring vessel under the discharge.

Press Start/Stop.

Measure or weigh the collected quantity.



Press ENTER and enter the measured or weighed quantity.

```
water targ.: 500 ml
measured:    390 ml
```

Press ENTER once again.

The entered figure disappears as soon as you press Start/Stop. The calibration process is said to be completed as soon as the set quantity is attained.

```
water targ.: 500ml→
measured:    ...ml
```

Press Arrow Right. The display shows when the corresponding component has been calibrated last.

```
water last calib.
on 17.07.03
```

Press Arrow Right. The display shows the time needed to dispense the set quantity.

```
water targ.: 500 ml
duration:    4.00 s
```

The warning message „Dosing time too long“ means that the dispensed resp. measured or entered quantity was too small. The set quantity was not attained.

```
dosing time too long
```

Press Arrow Up resp. Arrow Down to move to the following menus:

```
calibration      →
water HE         ^
```

For all other liquid and powder components, proceed as for boiler water.

Repeat the calibration process in order to be sure that the dispensed quantity is correct.

7.5.2 Calibrating Additives

If the automatic feeder is equipped with an additive dispenser, you have to calibrate the additives, too.

Select submenu „Additives“.

```
calibration      →
  additives      ^
```

Press Arrow Right to move to the next screen.

```
calibration      →
  prescr. 1^
```

Press Arrow Up or Arrow Down to select prescription 1-4 (X1-4) or electrolyte (EL).

```
calibration      →
  prescr. 1^
```

Press Arrow Right to move to the next screen.

```
X1 set:     10.0g →
measured:    .,.g
```

Hold a measuring vessel under the discharge.

Press Start/Stop.

Measure or weigh the collected quantity.

Press ENTER. Enter the measured or weighed quantity.

```
X1 set:     10.0g →
measured:    8.0g
```

Press ENTER to confirm the input.

Weigh the powder additives by means of a precision scales (e.g. electronic scales). Weighing precision has to be 0.1 g. Hold the measuring vessel under the discharge. Press Start/Stop. Weigh the quantity distributed and enter the figure corresponding to the measured or weighed quantity.

If you do not have a precision scales, repeat the calibration process several times, in order to get a larger additive amount. Then, divide the measured quantity by the number of calibrations and key in the figure.

Measure liquid additives by means of a measuring cylinder.
Each additive prescription has to be calibrated.

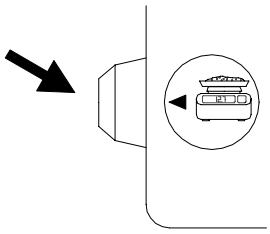
Repeat the calibration process, in order to be sure that the dispensed quantity is correct.

Standard value for the calibration of additives: 0

7.5.3 Calibrating the Concentrate

The concentrate has to be calibrated separately for each concentrate station.

- Clean the feeding bowl.
- Press the calibration key at the corresponding concentrate station and wait until dosing switches off automatically.



- Remove the entire quantity from the feeding bowl and weigh it.

The quantity to be calibrated is distributed only if no animal is staying within the identification range of the feeding station. The slide switch located at the Master station has to be on position „Restricted“. If the slide switch is on position „Ad Lib“, switch over to „Restricted“ and press RESET until both red alarm LEDs light up. Then, release RESET.

Enter the calibration values into the Stand Alone.
Turn the program switch to 5 = calibration.

Select submenu „concentrate“. The submenus are displayed only if the concentrate has been selected in Setup.

```
calibration      →
concentrate      ^
```

Press Arrow Right to go to the next screen.

```
calibration      →
concentrate silo:1^
```

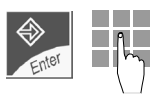
Press Arrow Up or Arrow Down to select the concentrate silo (1–4).

```
calibration      →
concentrate silo:1^
```

Press ENTER to confirm the input.

Press Arrow Right to move to the next screen.
Example for silo 1:

```
silo 1 dosing    →
quantity:     0 g
```



Press ENTER. Enter the quantity dispensed and weighed during calibration.

Press ENTER to confirm the input.

Carry out the same calibration routine for all other registered silos.

Standard value for the calibration of concentrate: 0

7.6 Setting the Heating

It is imperative to fill the heat exchanger with water **before** switching the heating on!

Thermostat for minimum operating temperature and heating:

The thermostat for minimum operating temperature prevents too cold milk or water from being dispensed. If the temperature in the boiler falls below the set minimum water temperature in the heat exchanger, the preparation of the milk will be interrupted until the minimum temperature is reached.

If the minimum operating temperature is not attained, the display shows the following message:

```
check temperature
```

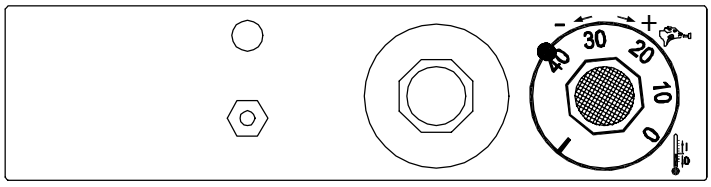
Factory settings:

The minimum operating temperature is factory-set between 38°C and 39°C. The minimum operating temperature should always be set 3°C below the heating temperature, in order to avoid overlaps in the control range.

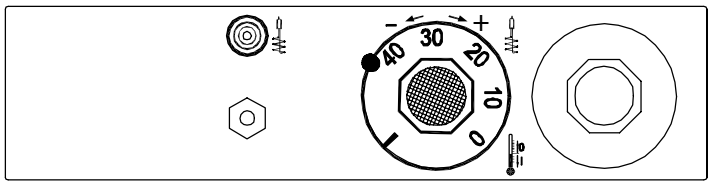
The heating temperature is factory-set between 42°C and 43°C.

7.6.1 Adjusting the Thermostats

- Turn the thermostat for minimum operating temperature (green) so far clockwise, until both green marks coincide.



- Turn the thermostat for boiler heating (red) so far clockwise, until both red marks coincide.



The marks facilitate temperature setting.
Nevertheless, you have to check the settings regularly.

7.6.2 Recommendations for Temperature Settings

The heat exchanger is designed in such a way that also cheaper milk powders with higher fat melting point can be used without problems. In this case, the outlet temperature has to be exactly between 42°C and 43°C.

Whole milk If you utilize whole milk or cold-soluble milk powders, a temperature of approx. 38°C will be enough.

The temperature has to be set very carefully. When reducing the heating temperature don't forget to reduce the minimum operating temperature accordingly.
Too low temperatures may cause indigestion whereas too high temperatures over a long period of time may lead to inflammation of the mucosa in the abomasum. Flatulence may indicate that the drinking temperature is too high.

7.6.3 Measuring the Temperature

The heating regulation is related to the portion size and the drinking speed of the animals. To measure the temperature do not extract more than 0.5 liters. If you want to carry out further measurements, you have to wait until the boiler has restored the temperature. Heat transmission time depends on the input and outlet temperature of the liquid and may vary between 10 and 25 seconds.

Turn the program switch to 5 = calibration.

```
calibration      →
water boiler     ^
```

- Wait until the orange pilot lamp of the boiler water heating has gone out.
- Make sure that the circulation pump is running *(if available)*.

Press Arrow Right to extract 0.5 liters of water.

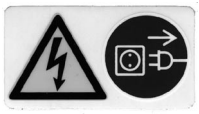
```
water targ.: 500ml
measured:    ...ml
```

Hold a measuring vessel under the discharge. Press Start/Stop.

Measure the water temperature in the mixer jar by means of a precision thermometer.

The next portion will be dispensed as soon as heat transfer time has lapsed (approx. 30 seconds). Carry out careful measurement and then alter the temperature, if necessary, in order to reach the desired temperature. If you want to carry out further measurements, you have to wait until the orange pilot lamp for the heating has gone out.

7.7 Heating for Milk Powder Outlet and Protection against Frost



Before opening the power unit you have to make the automatic feeder currentless, in order to avoid electric shocks. To this end, turn the main switch to position „0“/„OFF“ or pull the mains plug.

Inside the power unit is located a distribution board with integrated switches. *See chapter 1.6.2.2, page 14, „Distribution Board“.* The left switch is used to switch on and off the heating for the milk powder outlet. The right switch is used to switch the heating cable on and off.

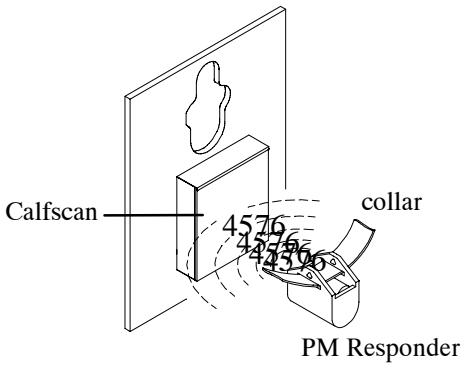
In summer it is imperative to set both switches to „0“ (= OFF)!

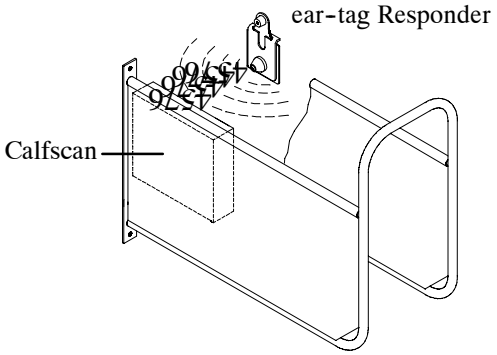
The heating for the milk powder outlet prevents creation of condensate on the milk powder outlet.

The heating cable with temperature control is available as an accessory and can be retrofitted at any time. It is active as soon as temperature falls below 3°C and protects hose pipes, solenoid valves and pressure reducer against frost. We recommend to mount a heating cable in case the automatic feeder should be installed in an unprotected location exposed to extreme cold.

7.8 Animal Identification and Responder Number Input

7.8.1 Animal Identification





Each animal has to wear a collar with a Responder or an ear tag Responder in order to be identified. The Responder has a 4-digit number imprinted on it. This number, defined as a Responder number, is transmitted via transmitter signals from the Responder to the antenna in the feeding station.

As the Responder number is not suitable for rapid identification of individual animals, each animal has on its collar or in its ear additionally a large animal number that can be easily read even from a long distance.

The system accepts animal numbers from 1 to 999. However it can manage or store only 99 animals. This means that only 99 out of 999 potential animal numbers can be assigned to Responder numbers for animal identification.

The animal numbers can be splitted up into three categories with the following features:

Before entering the Responder numbers, all animal numbers are marked with a „-“ next to the animal number.

Once you enter the Responder numbers, the animal numbers become available for animal marking. Available animal numbers are marked with an „a“ next to the number.

Once you register the animals, these numbers are not available anymore until you cancel them. The registered animal numbers are marked with a large group letter next to the animal number (A, B, C, D).

12-	Animal number 12 has not been assigned to a Responder number.
12a	Animal number 12 has been assigned to a Responder number. Animal number 12 is available.
12A	Animal number 12 has been registered in group A.

7.8.2 Check Connection between Calfscan and Stand Alone

If the micro-identification „Calfscan“ is connected correctly, in switch position 1 = feeding mode the display will show the symbol ≒ in the second line of the screen, as soon as an animal is identified. **No** symbol will be displayed if **no** animal is identified.

7.8.3 Automatic Reading of the Responder Numbers and Antenna Test

The Responder numbers can be read automatically or keyed in. Automatic Responder number reading facilitates start-up of the automatic feeder as it requires less time than manual input. In this way you can avoid misentries.

Turn the program switch to 6 = animal data and Info.

```
animal data &Info →
weight, days fed  ^
```

Select submenu „Transmitter Input“.

```
animal data &Info →
transmitter input ^
```

Press Arrow Right to go to the next screen.

```
animal-No.:     1-^
transm.-No.:     0
```

Select the animal number.

Hold the Responder of the selected collar within the reach of the antenna.

Press Start/Stop. A bleep is emitted as soon as the Responder is read. The cursor starts flashing on zero in case the number could not be read.

```
animal-No.:     1a^
transm.-No.:  1234
```

Press ENTER to confirm the read-in number.

Press Arrow Right to go to the next screen. Here you can start the antenna test. The antenna test facilitates detection of overlappings in the identification range.

```
antenna test start →
```

Press Start/Stop. A bleep is emitted as soon as the Responder is read. The Responder number read appears in the text area at the upper right of the screen next to the antenna symbol.

```
≒   383   ≒   384
```

Two different Responders can be read simultaneously at two antennas. If, for instance, at antenna 1 a Responder is read which is actually assigned to antenna 2, we talk about faulty identification caused by an overlap of reach. Faulty identification also occurs when animals standing beside the feeding station are identified. In case of micro-identification „Mikro-

Nedap“ you can set the identification range of the antenna by the antenna-Squelch value. In case of micro-identification „Mikro-Tiris“, install a screening of the antennas by means of earthed metal sheet plates. If necessary, close off the area beside the feeding station.

Move to the next screen. Set the input or reading sensitivity of the antennas. The higher the entered value, the lower the antenna range. Potential input: 0 to 200.

```
squelch antenna
feeding 180        →
```

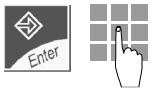
Press ENTER to confirm the input.

The antenna type is decisive for the identification range. In case of micro-identification „Calfscan“ you can set the range by the Squelch-value of the antenna. The following table contains Squelch values and identification ranges for the different Responders. These Squelch values are empirical and have already been factory-set.

Responder	Squelch (Standard values)	Identification range
X-Responder	0	max. 25 - 30 cm
Ear tag-Responder	0	max. 25 - 30 cm
PM-Responder	180	max. 20 - 25 cm

The entered value is active, until you change it manually.

7.8.4 Manual Input of Responder Numbers



Press ENTER. Subsequently, enter the desired animal number and the corresponding Responder number.

```
animal No.:     1a^
transm.-No.:  1234
```

Press ENTER to confirm the input.

Press Arrow Up or Arrow Down to select the next animal number.

```
animal-No.:     2a^
transm.-No.:  1235
```

Press ENTER to confirm the input.

After the Responder input has been completed, press ESCAPE to return to the menu.

7.9 Registering the Animals

At animal registration the animals are allocated to several feeding groups according to their animal numbers. You can choose between individual, group or automatic registration. The animals can be allocated to four different groups (A, B, C, D), thus being fed group-specifically. Example:
Group A for heifers (less increase),
Group B for bull calves (more increase),
Group C for white veal calves,
Group D for other calves.

Group assignment is only related to the feeding plans according to which the animals are fed. All animals can be fed at any feeding station irrespective of the group to which they have been assigned.

Only valid for Combi feeders: animals being fed only with milk or only with milk powder+water have to be allocated to different feeding groups.

7.9.1 Registering Individual Animals

If the livestock (gender, age, weight) is not homogenous, you have to register the animals individually in the corresponding group.

Turn the program switch to 6 = animal data and Info.

```
animal data & Info→
weight, days fed ^
```

Select submenu „Register“.

```
animal data & Info→
       register ^
```

Press Arrow Right to go to the next screen. The display shows the number of available animal numbers.

```
8  anim. numbers  →
are available
```

Press Arrow Right to move to the next screen.

```
1a^ register in A^
```

Select the animal number.

```
12a^register in A^
```

Press ENTER to confirm the input.

```
12a^register in A^
```

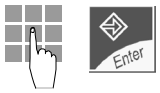
Select the group (A, B, C, D).

```
12a^register in B^
```

Press ENTER to confirm the input.

If in Setup no scales have been activated, the cursor automatically jumps to the following screen:

```
12B^ weight 55 kg
   LWG +561 g/day
```



Enter animal's weight and press ENTER to confirm the input.

```
12B^ weight 55 kg
   LWG +561 g/day
```

It is indispensable to key in animals' weight if during the feeding period weight-dependent additive prescriptions are fed. This ensures that the animals automatically get the additive amount corresponding to their weight.

How to correct misentries relating to weight and group:

If an animal has not been allocated to the desired group, in submenu „Change Registration" you can rectify this manual input as soon as registration has been completed.

If the entered weight is wrong, in submenu „Weight and Feeding Days" you can rectify this manual input.

Setting housing date:

At registration the current date is automatically taken over as housing date. You cannot change this date.

At registration all animals start on the first day of the feeding plans.

After registration has been completed, the display shows the following message:

```
1A^ is registered
```

Press Arrow Up or Arrow Down to select the proximate available animal number.

```
13a^register in B^
```

Press ENTER. The display automatically shows the group selected last as well as the last weight input. Press ENTER to confirm the input or key in the desired figure.

```
13B^ weight 55 kg
   LWG +561 g/day
```

After the last animal has been registered, press ESCAPE to go back to the menu.

7.9.2 Registering Groups

If the livestock is homogeneous (gender, age, weight) you can register several animals simultaneously in a group.

Turn the program switch to 6 = animal data and Info.

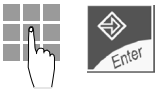
```
animal data & Info→
weight, days fed^
```

Select submenu „Register groups“.

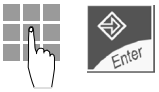
```
animal data & Info→
register groups^
```

Press Arrow Right to move to the next screen. Press ENTER.

```
anim. 1 to 999    →
register in A^
```



Enter the first animal number required and press ENTER to confirm the input.



Enter the last animal number required and press ENTER to confirm the input.

Select the group.

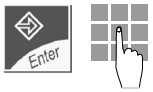
```
anim. 1 to 999    →
register in A^
```

Press ENTER to confirm the input.

```
anim. 1 to  25    →
register in B^
```

The following screen is displayed:

```
B weight 55 kg    →
 LWG 561 g/day
```



Press ENTER. Enter a representative animal weight.

Press ENTER to confirm the input.

```
25 anim. have been
   registered
```

If one or more animal numbers have not been cancelled thus being unavailable, the display will show e.g.:

```
fr. No. 1 to 25
not all available
```

Press Arrow Right to go to the next screen.

```
not available anim.
cancel regist.? no
```

Enter „no“ to register only the available numbers.

```
not available anim.
cancel regist.? no
```

Enter „yes“ to cancel the unavailable numbers.

```
not available anim.
cancel regist.? yes
```

The display shows the number of registered animals.

```
23 anim. have been
   registered
```

7.9.3 Registering Automatically

Automatic registration shortens and simplifies the registration process of the animals. Contrary to the registration of individual animals or groups, in this menu there is no need to enter animal numbers and animal-specific data, such as e.g. weight and estimated daily weight gain. If an available number is identified in the feeding station, it is automatically allocated to a pre-selected group.

Turn the program switch to 6 = animal data and Info.

```
animal data & Info→
weight, days fed ^
```

Select submenu „Automatic Register“.

```
animal data & Info→
automatic register^
```

Press Arrow Right to go to the next screen.

```
automatic          →
register no
```

Select „yes“ and press ENTER to confirm the input.

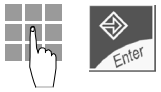
```
automatic          →
register yes
```

Press Arrow Right to move to the next screen. Press ENTER.

```
gr. A^ wei. + 55 kg
     LWG +561 g/day
```

Select the group.

Press ENTER to confirm the input.



Enter a realistic housing weight and press ENTER.

Automatic registration is active until you enter „no“.

Each identified and available number is assigned later on to the selected group with the entered weight and the daily weight gain.

If „Automatic Registration“ is still active, all animals to be cancelled
- have to be removed from the feeding station
- or the Responder has to be taken off,

otherwise it may happen that they are reregistered.

7.10 Entering the Correction Days

The correction days are intended to shift each animal to any point of the relevant curve of e.g. the feeding plan and the concentration plan. Refer to chapter 9 ff, page 72 ff, „Altering the Operational Data“).

- Positive numbers (with +): Enter positive numbers in order to „make the animals older“ and to shift them to the right of the curve.
- Negative numbers (with –): Enter negative numbers in order to „make the animals younger“ and to shift them to the left of the curve.

Turn the program switch to 6 = animal data and Info.

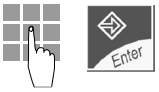
```
animal data & Info▶
weight, days fed^
```

Press Arrow Right to move to the following screen:

```
2A^corr. + 0 days
expires in 77days
```

Select the animal number.

Press ENTER to confirm the input.



Enter the number of correction days and press ENTER to confirm the input.

At registration the animals start on the first day of the curve. Therefore at housing you cannot enter negative numbers, because no animal can be fed prior to the beginning of the curve. The animals cannot be made younger immediately after housing.

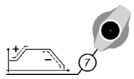
If during concentrate feeding automatic weaning is active and the animal has exceeded the initial value, the display will show in the first line e.g. „weang.+ 5 days“ (weang. = weaning days) instead of e.g. „corr. + 0 days“. In this case the animal will be shifted to the right of the feeding plan by 5 days.

7.11 Entering Deviations (Addition/Reduction)

In this menu you can change the milk quantity, the concentration-, the concentrate or the additive amount for each individual animal.

The submenus relating to the additives are displayed only if at least one animal gets an additive.

7.11.1 Deviations of Milk Portions



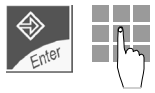
Turn the program switch to 7 = deviations.

Select submenu „Feeding“.

```
+/- deviation      →
feeding            ^
```

Go to the next screen. The first line contains information on the milk amount of today. In the second line you can raise or reduce the milk quantity for a certain number of days (starting from the feeding plan).

```
12C^ dr.:    6.0 L
for  0 days +0.0 L
```



Press ENTER. Enter the animal number.

```
14C^ dr.:    6.0 L
for  0 days +0.0 L
```

Press ENTER to confirm the input. The following screen e.g. is displayed:

```
14C^ dr. transfer
1.5 L delete   no
```

Select „yes“ to clear the carryover. Press ENTER to confirm the input.

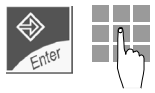
```
14C^ dr. transfer
1.5 L delete  yes
```

Select „no“ to maintain the carryover. Press ENTER to confirm the input.

```
14C^ dr. transfer
1.5 L delete   no
```

Go to the next screen.

```
14C^ dr.:    6.0 L
for  0 days +0.0 L
```



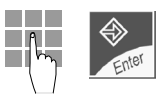
Press ENTER. Enter the number of days for the duration of addition/reduction.

```
14C^ dr.:    6.0 L
for  3 days +0.0 L
```

Press ENTER to confirm the input.

Press the „+/-“ key to select „+“ for addition and „-“ for reduction. Press ENTER to confirm the input.

```
14C^ dr.:    6.0 L
for  3 days -0.0 L
```



Enter the amount of addition or reduction and press ENTER.

```
14C^ dr.:    6.0 L
for  3 days -2.0 L
```

After the entered period of time has lapsed, the corresponding animal appears as expire animal and is set back to the feeding plan.

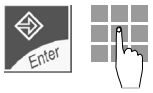
7.11.2 Deviations of Concentration

Select submenu „Concentration“.

```
+/- deviation     →
concentration     ^
```

Go to the next screen. The first line contains information on the current concentration. In the second line you can raise or reduce the concentration for a certain number of days (starting from the concentration plan).

```
14C^ conc: 120 g/L
for  0 days +0 g/L
```



Press ENTER. Enter the number of days for the duration of addition/reduction.

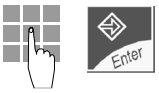
```
14C^ conc: 120 g/L
for  3 days +0 g/L
```

Press ENTER to confirm the input.

```
14C^ conc: 120 g/L
for  3 days +0 g/L
```

Press the „+/-“ key to select „+“ for addition and „-“ for reduction. Press ENTER to confirm the input.

```
14C^ conc: 120 g/L
for  3 days +0 g/L
```



Select the amount of addition or reduction and press ENTER to confirm the input.

```
14C^ conc: 120 g/L
for 3 days +10 g/L
```

After the entered period of time has lasped, the corresponding animal is displayed as expire animal and is set back to the concentration plan.

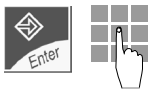
7.11.3 Deviations of Concentrate

Select „Concentrate“.

```
+/- deviation     →
concentrate ^
```

Move to the next screen. The first line contains information on the current quantity of concentrate type 1. In the second line you can raise or reduce the quantity of concentrate for a certain number of days (starting from the concentrate plan).

```
14C^  C1     0.2 kg
for  0 days +0.0 kg
```



Press ENTER. Enter the number of days for the duration of addition/reduction.

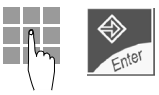
```
14C^  C1     0.2 kg
for  5 days +0.0 kg
```

Press ENTER to confirm the input.

```
14C^  C1     0.2 kg
for  5 days +0.0 kg
```

Press the „+/-“ key to select „+“ for addition and „-“ for reduction. Press ENTER to confirm the input.

```
14C^  C1     0.2 kg
for  5 days +0.0 kg
```



Select the amount of addition or reduction and press ENTER to confirm the input.

```
14C^  C1     0.2 kg
for  5 days +0.2 kg
```

After the entered period of time has lasped, the corresponding animal is displayed as expire animal and is set back to the concentrate plan.

Go to the next screen. For concentrate type 2 proceed as for concentrate type 1.

```
12C^   C2    0.7 kg
for  0 days +0.0 kg
```

7.11.4 Deviations of Additives

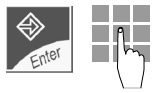
This submenu is displayed only if additive distribution is active.

Select submenu „Additives“.

```
+/- deviation     →
    additives ^
```

Go to the next screen. In the first line are displayed the number of the active prescription (X 1-4), whether an electrolyte is active or not and the amount of the current day quantity. In the second line you can raise (enter „+“) or reduce (enter „-“) the additive amount for a certain number of days.

```
14C^ X1 20g/100kg
for  0 d. +0g/100kg
```



Press ENTER. Enter the number of days for the duration of addition/reduction.

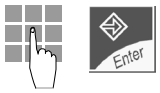
```
14C^ X1 20g/100kg
for  4 d. +0g/100kg
```

Press ENTER to confirm the input.

```
14C^ X1 20g/100kg
for  4 d. +0g/100kg
```

Press the „+/-“ key to select „+“ for addition and „-“ for reduction. Press ENTER to confirm the input.

```
14C^ X1 20g/100kg
for  4 d. -0g/100kg
```



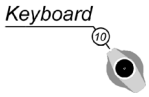
Select the amount of addition or reduction and press ENTER to confirm the input.

```
14C^ X1 20g/100kg
for  4 d. -8g/100kg
```

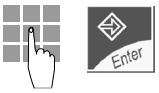
After the entered period of time has lapsed, the corresponding animal is displayed as expire animal. From then on the animal no longer gets addition/reduction.

7.12 Accustoming Aid

If the automatic feeder is equipped with two feeding stations, one station can be temporarily blocked in order to allow undisturbed accustoming at the other feeding station.



Turn the program switch to 10 = keyboard.



Enter 4 and press ENTER to confirm the input.

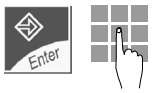
```
4# accustom. aid  →
   feeding box    ^
```

Press Arrow Right to go to the next screen.

```
4# box 1^ accustom.
for 60 min ?   no
```

Select box number 1 or 2.

```
4# box 2^ accustom.
for 60 min ?   no
```



Press ENTER. Enter the duration of accustoming aid (up to 180 minutes = 3 hours). During this time the identification at the other station is not active.

```
4# box 2^ accustom.
for 90 min ?   no
```

Press ENTER to confirm the input.

```
4# box 2^ accustom.
for 90 min ?   no
```

Select „yes“ and press ENTER.

```
4# box 2^ accustom.
for 90 min ?   yes
```

Go to the next screen.

```
4# warn calves ^  →
priority ?  no
```

Select „Warn Calves“, „Box 1“ or „Box 2“. You can only privilege warn calves **or** box 1 **or** box 2.

Select „yes“ if you want to privilege warn animals. Press ENTER to confirm the input.

```
4# warn calves ^  →
priority ?  yes
```

Go to the next screen.

```
4# box 1 ^        →
priority ?   no
```

Select box 1 or 2.

```
4# box 2 ^        →
priority ?   no
```

Select „yes“ and press ENTER to confirm the input.

```
4# box 2 ^        →
priority ?  yes
```

After the entered duration of the accustoming period has lapsed, the warn animals **or** the feeding station 1 **or** 2 are privileged until you change „priority yes“ into „priority no“.

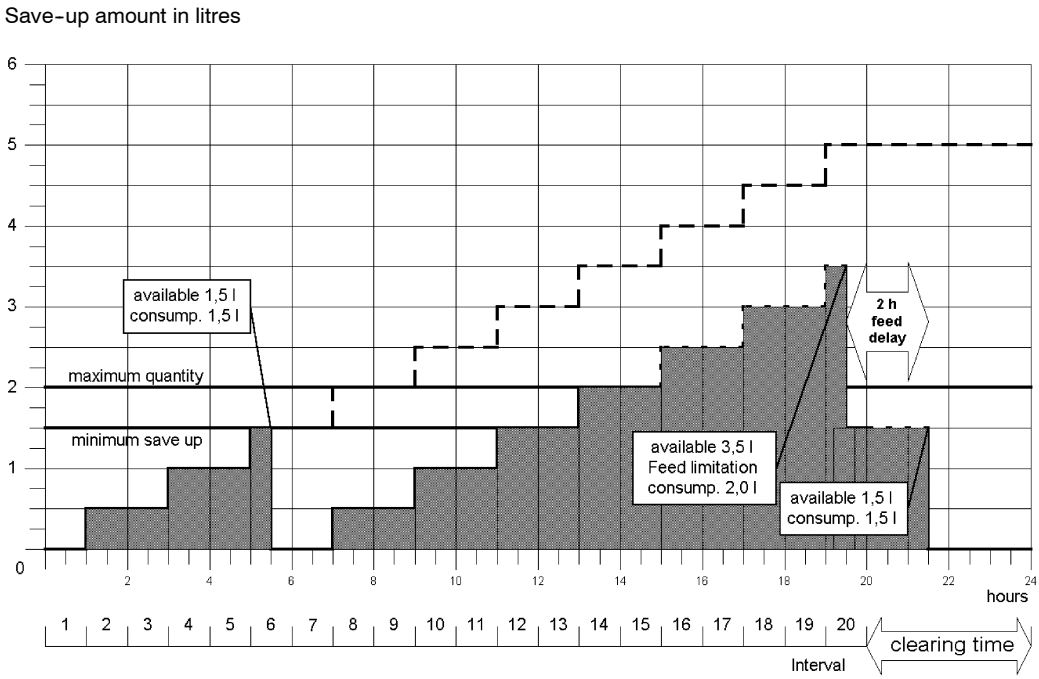
8 Functioning of Automatic Feeder and Concentrate Feeder

After the animals (A, B, C, D) have been registered in a group, they are fed according to the corresponding plans.

The current drinking or concentrate entitlement is determined in the interval feeding system according to the corresponding plan. The feed requirements are accumulated from interval to interval and demand is possible as soon as the minimum saved quantity is reached. As of 8 p.m. the total amount of non consumed feed will be available until midnight calculation.

Interval Feed System - Basic function

Animal with 5 L milk per day, 1.5 L minimum saved quantity and 2.0 L maximum quantity, 20 entitlement intervals, 1 clearing interval



Minimum save-up quantity:

The available feed quantity increases continuously from interval to interval. Milk or concentrate are dispensed only after the minimum save-up quantity is attained thus preventing the animals from consuming very small portions. As soon as an animal has attained the minimum save-up quantity during an interval, the feed quantity will be released and can be claimed even on several visits.

Carryover:

If an animal does not entirely consume the available feed quantity until midnight, there will be a quantity left that is carried over to the following day. Consequently, at midnight the value is not zero but it corresponds to the carryover. The quantity exceeding the carryover is not transferred to the next day but it is cancelled.

Maximum quantity:

To avoid excessive milk or concentrate intake due to too high minimum save-up quantity, the animals can only claim limited quantities. Once the maximum quantity is attained, the entitlement is blocked for two hours. The accumulated quantities are not cancelled.

8.1 Preparing the Milk Portions

The warm water is taken from the boiler of the heat exchanger. The milk pump delivers the milk through the stainless steel coil of the heat exchanger into the mixer jar.

The circulation pump - if available - keeps the warm boiler water moving at high speed thus effecting rapid heat transfer to the liquid inside the stainless steel coil. 15 minutes after the last portion has been distributed, the circulation pump switches off automatically. Every 15 minutes the pump switches on for 1 minute or in case an animal claims its milk portion.

When the liquid jet hits the supply electrode (short electrode) in the mixer jar, a pre-set milk powder portion falls from the powder hopper into the mixer jar where it is mixed with the liquid. The mixer is connected by a suction hose via a box valve to the feeding station. The milk flows through the suction hose to the teat in the feeding station.

If the milk ratio for all animals falls below the set threshold value, the automatic feeder will commute automatically to „single heating circuit“ at midnight calculation. Milk and water are taken from the stainless steel coil. In this way, the milk does not stay too long inside the coil. S*ee chapter 10 ff, page 91 ff, „Milk Functions“, „Selecting the Milk Ratio for Change-Over to Single Heating Circuit“*.

8.2 Distributing the Milk

As soon as the level electrode is free (long electrode), the machine starts preparing the next portion.

8.2.1 In the Restricted Mode

The electrode is free:

If an entitled animal enters the feeding station and is identified, the automatic feeder prepares a milk portion as soon as the mixer jar is empty. The milk in the mixer jar grounds the level electrode (long electrode). As soon as the animal has drunk up the milk and the electrode is free again, the machine starts preparing the next portion in case the calf has still drinking right.

The electrode is covered:

If an entitled animal enters the feeding station and is identified, the remaining portion will be stirred in the mixer jar. After the animal has drunk the remaining portion, i.e. the mixer jar is empty and the electrode is free again, the automatic feeder starts preparing the next portion.

Two feeding stations:

If an entitled animal is identified, the corresponding suction line will open. If the animal is not entitled anymore, the suction line will close as soon as the long electrode is free again and the entered draining time has lapsed (standard value 16 seconds). If the long electrode is still covered, the suction line will close after approx. 2 minutes.
If the animal interrupts feeding, 5 minutes after the portion has been prepared, the remaining quantity in the mixer will be released, i.e. each animal is now allowed to drink it. The remaining portion in the mixer jar will be drained off automatically via the mixer outlet valve after a set period of time. *See chapter 14.5.4, page 137, „Cleaning Settings, Remaining Portion“.*

8.2.2 In the Ad Libitum Mode

In the ad libitum mode the automatic feeder operates without animal identification. As soon as the level electrode is free, the machine starts preparing the next portion. In case of two feeding stations, both suction lines will open.

If the automatic feeder operates in the ad libitum mode for a long period of time, the 2-group valve unit will heat considerably. Therefore, connect the suction hoses directly to the mixer and remove the plug from the 2-group valve unit.

8.3 Distributing the Concentrate

The concentrate feeder distributes the next portion as soon as the dosing flap in the feeding bowl is not covered anymore.

8.3.1 In the Restricted Mode

A concentrate portion is dispensed as soon as an entitled animal enters the concentrate station and is identified. The next portion will be dispensed as soon as the dosing flap is free and the animal is still entitled to concentrate.

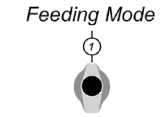
8.3.2 In the Ad Libitum Mode

In the ad libitum mode the concentrate feeder operates without animal identification. The next portion is dispensed as soon as the dosing flap is not covered anymore.

8.4 Releasing an Extra-Portion

8.4.1 The Long Electrode is free

If the long electrode is free, in switch position „Feeding Mode“ you can manually release any number of milk portions whatever. These milk portions are neither deducted from the feed entitlement nor they are stored by the program.



Turn the program switch to position „Feeding Mode“.

Press Arrow Left. The display shows the following message:

```
extra-portion start
0.5 L  120g/L  100%
```

Enter the milk ratio and press Start/Stop to prepare a 0.5 liter milk portion with a concentration of 120 g/L.

The milk portion is dispensed either at the feeding station or into a container (e.g. a bucket).

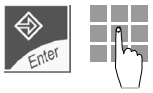
If the portion is dispensed via the feeding station, you have to select the desired station in order to open the corresponding suction line.

```
extra-portion
   box: ?
```

If the portion is dispensed into a container (e.g. a bucket), press „5“. The milk is then delivered via the mixer outlet valve from the mixer into the container. The display shows:

```
extra-portion
   box: 5
```

You can also manually enter the output quantity, the feed concentration and the milk ratio.



Press ENTER to raise the output quantity and to change the concentration and/or the milk ratio of a portion. Potential input for the output quantity: 0.5 to 25.5 L (standard value: 0.5 L). Potential input for the concentration: 0 to 255 g/L (standard value: 120 g/L). The milk ratio is between 10 and 90 %.

```
extra-portion start
1.5 L  130g/L  100%
```

Press ENTER to confirm the input.

Press Start/Stop to start the preparation of a drinking portion.

If you enter more than 0.5 L, the drinking portions will be mixed up and dispensed one after another. As soon as the long electrode is free, the machine starts to prepare the next portion.

Therefore never tilt the mixer jar if you want to empty it!

After the first milk portion has been prepared, select the desired box in order to open the corresponding suction line. Press „5“ to dispense the milk portion into a separate container.

```
extra-portion
   box: ?
```

If the milk portions have been dispensed into a separate container (e.g. a bucket), after dispense of the last portion the display will show:

```
extra-portion finish.
continue with 0/C
```

To dispense any further milk portion, enter the desired output quantity and concentration and repress „Start“. If no further entries are made, the machine will start operating in feeding mode after a few seconds.

In case of large output quantities (> 1.5 L) and rapid extraction of the portions, the minimum operating temperature ensures that the preparation of the milk portions is interrupted as soon as the boiler has restored the temperature.

The extraction speed of the milk portions is also related to the input temperature of the water (distinction between summer and winter time).

8.4.2 The Long Electrode is Covered

A milk portion can also be dispensed when the long electrode is covered:

Turn the program switch to position „Feeding Mode“.

Press Arrow Left.

```
release rest portion
     box: ?
```

Enter the box. The remaining portion will be released.

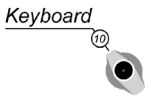
After the long electrode is free, proceed as described in chapter 8.4.1, page 67.

8.5 Feed Delay/Delete Consumption

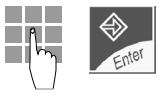
You can delete feed delay as well as milk and concentrate consumption for each individual animal and for each group.

If an animal has already claimed the maximum milk quantity, feed delay will prevent it from excessive milk or concentrate consumption. You can enter the maximum quantity into keyboard menu 15 = Quantity Limits.

Milk or concentrate consumption is automatically set back to 0 as soon as you delete it. The animals are entitled to one milk portion according to drinking time.



Turn the program switch to 10 = keyboard.



Enter 90 and press ENTER to confirm the input.

```
90# delete          →
    feeding         ^
```

Select submenu „Feeding“ or „Concentrate“.

```
90# delete          →
    concentrate     ^
```

8.5.1 Delete Feed Delay

Press Arrow Right to go to the next screen.

```
90# feed delay A^   →
delete  no          ^
```

Select the group.

```
90# feed delay A^   →
delete  no          ^
```

Select „yes“. Press ENTER to confirm the input.

```
90# feed delay A^   →
delete  yes         ^
```

Go to the next screen.

```
2A^ feed delay      →
delete  no          ^
```

Select the animal.

```
3A^ feed delay      →
delete  no          ^
```

Select „yes“. Press ENTER to confirm the input.

```
3A^ feed delay      →
delete  yes         ^
```

8.5.2 Delete Consumption for the Entire Group

Go to the next screen.

```
3A^consum.group A^→
delete  no        ^
```

Select the group.

```
3A^consum.group A^→
delete  no        ^
```

Select „yes“. Press ENTER to confirm the input.

```
3A^consum.group A^→
delete  yes       ^
```

8.5.3 Delete Consumption for Individual Animals

Move to the next screen.

```
3A^consum/animal  →
delete  no        ^
```

Select the animal.

```
2A^consum/animal  →
delete  no        ^
```

Select „yes“ and press ENTER to confirm the input.

```
2A^consum/animal  →
delete  yes       ^
```

8.6 Daily Calculation

Daily calculation takes place every day at midnight, thus completing the feeding day.

At daily calculation

- the date, feeding days and remaining days (until the end of the plan) are updated,
- the carryover is transferred to the next feeding day,
- the alarms are calculated,
- the weight is updated,
- the milk ratio is checked,
- the feed entitlement is calculated for the following day according to concentrate consumption.

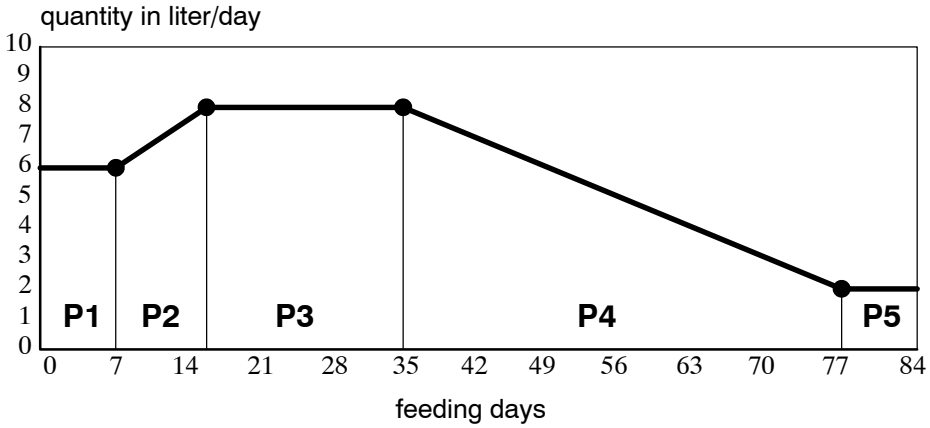
9 Altering the Operational Data

Operational data are defined as those data concerning milk- and concentrate distribution, such as e.g. feeding plans, alarm levels etc. During installation (after „New Installation“) the standard values are used as operational data. These standard values are empirical. You can alter them at any time according to the needs of each individual animal.

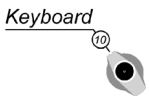
9.1 Feeding Plans

9.1.1 Age-Dependent Drinking

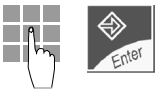
Periods of a Feeding Plan
Förster-Technik



You can enter one feeding plan with 5 periods (P1-P5) for each of the four groups (A, B, C, D). *(For feeding plans, see the appendix of this User's Manual).*
The registration day corresponds to the first day of the feeding plan.



Turn the program switch to 10 = keyboard.



Enter 10. Press ENTER to confirm the input.

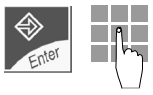
```
10# feeding plan
    group A^      →
```

Select the group.

```
10# feeding plan
    group A^      →
```

Press Arrow Right to go to the next screen.

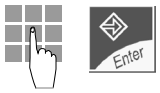
```
10# A per.1 3 days
fr. 6.0L to 6.0L  →
```



Press ENTER. Enter the duration of period 1 in days.

```
10# A per.1 4 days
fr. 6.0L to 6.0L  →
```

Press ENTER to confirm the input.

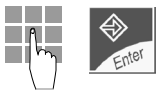


Enter the start and end value of period 1 in litres and press ENTER to confirm the input. Enter and confirm separately the figures preceding the decimal point. The cursor starts flashing at the relevant spots.

```
10# A per.1 4 days
fr. 5.0L to 6.0L →
```

Press Arrow Right to move to period 2.

```
10# A per.2 14 days
fr. 6.0L to 8.0L →
```



Enter the duration of the period in days and the end value in litres. Press ENTER to confirm the input. You do not need to enter the start value of the period. This figure has been taken over from the end value of the preceding period.

```
10# A per.2 15 days
fr. 6.0L to 9.0L →
```

Press Arrow Right to move to the periods 3 to 5. Proceed as with the periods 1 and 2.

```
10# A per.3 18 days
fr. 9.0L to 9.0L →
```

After the 5th period, the display shows the total duration of the feeding plan:

```
10# feeding plan
plan lasts  77 days
```

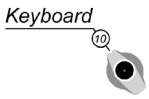
The next screen shows plan requirement for the amount of milk and solid matter calculated from the feeding- and the concentration plan. Example with standard values:

```
10# target consum.
478 L SM: 56 kg
```

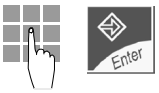
Standard values feeding plan: *(also refer to the annex of this instruction manual)*
group A: total 478 L = 77 days
group B: total 384 L = 70 days
group C: total 316 L = 64 days
group D: total 346 L = 71 days

9.1.2 Weaning

In this submenu you can select whether the individual animal groups are to be weaned according to the feeding plan, to concentrate consumption or to weight (provided that the automatic feeder is equipped with a concentrate feeder or an animal scales previously selected in Setup).



Turn the program switch to position 10 = keyboard.



Enter 45. Press ENTER to confirm the input. Select the group that is to be weaned.

```
45# weaning        →
    group A^
```

Press Arrow Right to move to the next screen. If the group is to be weaned according to the feeding plan, you do not need to modify the standard setting („yes“).

```
45# group A: yes
feed acc. to plan^
```

In case of concentrate-dependent weaning and provided that the automatic feeder is equipped with a concentrate feeder previously selected in Setup, press Arrow Up/ Arrow Down to move to the following screen:

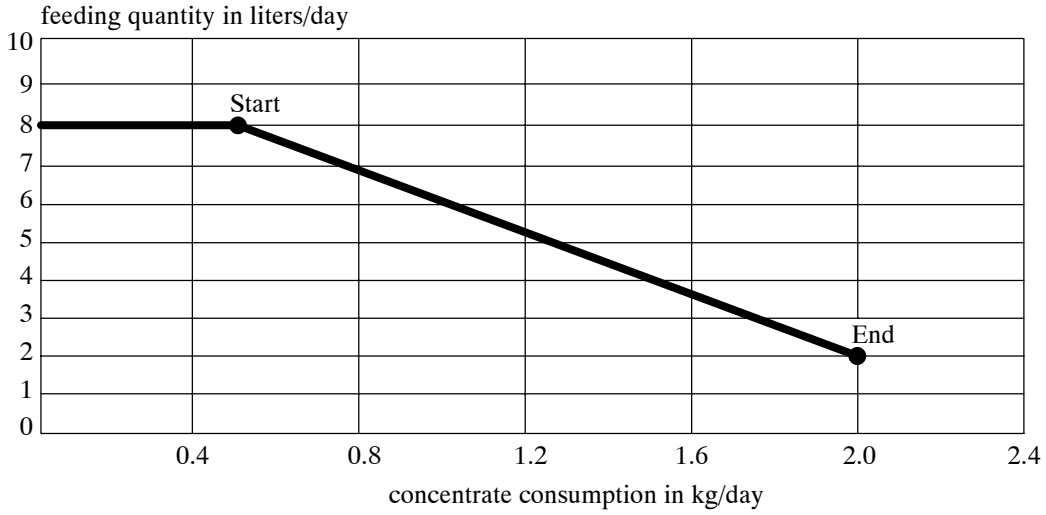
```
45# group A:  no  →
C-dependent feeding?
```

Press the Yes/No-key to change the standard setting (no). Press ENTER to confirm the input.

```
45# group A: yes  →
C-dependent feeding?
```

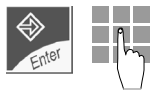
If the animals are weaned according to concentrate consumption or weight, you can shorten the feeding periods. The beginning of weaning can be controlled by concentrate consumption. If animal's average concentrate consumption of the last 4 days (type 1 and 2 together) exceeds the initial value of concentrate-dependent weaning, the animal will be shifted to the beginning of the weaning period. As soon as the animal reaches the final value of concentrate consumption, it will only get the minimum quantity set in the feeding plan. The minimum quantity is determined by the feeding plan.

Example
Weaning
Förster-Technik



Go to the next screen.

```
45# A start: 0.5 kg
        end: 2.0 kg
```

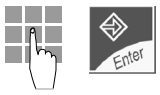


Press ENTER. Enter the initial value for the beginning of weaning.

```
45# A start: 0.6 kg
        end: 2.0 kg
```

Press ENTER to confirm the input.

If the initial value is not attained, the animal will be fed according to the feeding plan. If at daily calculation, animal's average concentrate consumption of the last four days exceeds the initial threshold value for weaning, the correction days will be calculated automatically and the animal will be shifted to the beginning of the weaning period. By the correction days, the animal is shifted to the right of the concentrate curve. From now on, the milk quantity is calculated each day anew according to concentrate consumption. However, the milk quantity cannot be increased even if the concentrate consumption decreases.



Enter the final value for weaning. Press ENTER to confirm the input.

```
45# A start: 0.6 kg
        end: 1.8 kg
```

If an animal has reached or exceeded the set final value over a period of 4 days, it will only get the minimum quantity set in the feeding plan. The feeding plan indicates how long the minimum amount should be fed.

Standard values for weaning by concentrate: start 0.5 kg, end 2.0 kg.

The feeding period can also be shortened by weight-dependent weaning (provided that the automatic feeder is equipped with an animal scales that has been previously registered in Setup). The feed amount is reduced bit by bit as soon as an animal has reached a certain weight.

```
45# group A: no  →
weight-dep. feeding?
```

Press the Yes/No-key to modify the standard setting (no). Press ENTER to confirm the input.

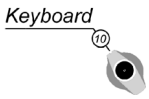
```
45# group A: yes →
weight-dep. feeding?
```

Press Arrow Right to move to the next screen. Key in as of which weight, weight-dependent weaning should begin (here: as of 65 kg). Select the weight factor (here: 0.25). Example with standard values: if the weight of an animal in group A is 65 kilograms, 0.25 liters per kilogram weight gain will be deducted from the feed quantity to which the animal is entitled according to feeding plan A.

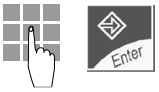
```
45# A start: 65 kg
    factor: 0.25L/kg
```

9.2 Concentration Plans

You can enter one concentration plan splitted up into 5 periods (P1-P5) for each of the four groups (A, B, C, D). *See the annex of this instruction manual.* The periods of the concentration plans are not bound to the periods of the feeding plans. If e.g. the concentration is the same for all feeding periods, you only need to enter one period with the corresponding duration.



Turn the program switch to 10 = keyboard.



Enter 11 and press ENTER to confirm the input.

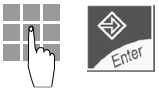
```
11# concentr. plan
    group A^      →
```

Select the group.

```
11# concentr. plan
    group A^      →
```

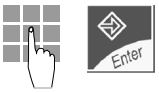
Go to the next screen and press ENTER.

```
11# A per.1 77 days
fr. 120 to 120g/L →
```



Enter duration of the first period. Press ENTER to confirm the input.

```
11# A per.1 12 days
fr. 120 to 120g/L →
```



Enter the initial and final concentration. Press ENTER to confirm the input.

```
11# A per.1 12 days
fr. 80 to 110g/L  →
```

For the periods 2 - 5, proceed as for period 1. The start value of a period equals the end value of the preceding period and is taken over from it.

If the entered concentration value is below the content of solid matter in the milk (milk value, generally 120 g/L), water will be added to the milk. If the entered concentration value exceeds the milk value, milk powder will be added to the milk.

After the 5th period, the display shows duration of the concentration- and the feeding plan. Example with standard values:

```
11#   plan: 77 days
feed. plan: 77 days
```

If the concentration plan is shorter than the feeding plan, the end of the concentration plan will appear as an expire message. The last concentration is fed until the end of the feeding plan.

The next screen shows plan requirement for the milk amount and the solid matter calculated from the feeding-, the concentration- and the milk ratio plan. Example with standard values:

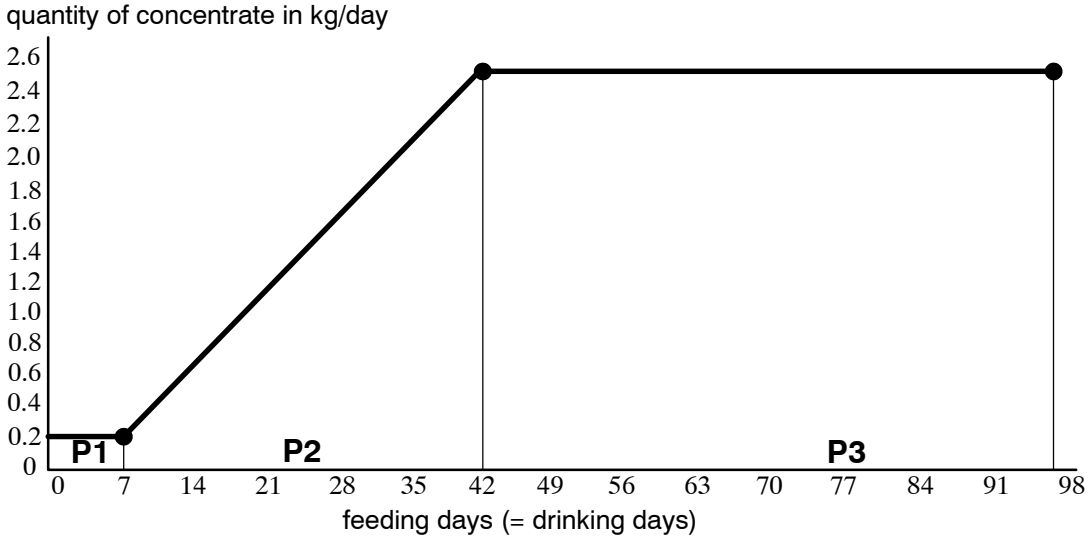
```
11# target consum.
478 L   SM: 57 kg
```

Standard values of the concentration plan:
group A: total 57 kg MP = 77 days
group B: total 46 kg MP = 70 days
group C: total 38 kg MP = 64 days
group D: total 42 kg MP = 71 days

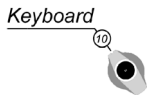
9.3 Concentrate Plans

Two concentrate types (C 1 and C 2), such as e.g. calf starter or farm-derived coarse meal mix can be fed, provided that two concentrate feeders have been installed. *For settings, see chapter 7.3.1, page 36, „Setup, Activating the Concentrate“)*. Each of the four groups is divided into 5 periods.

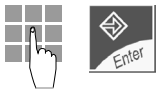
Periods of a Concentrate Plan
Förster-Technik



Concentrate plan 1:



Turn the program switch to 10 = keyboard.



Enter 40 and press ENTER to confirm the input.

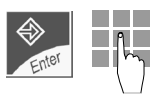
```
40# C1-plan
    group A^      →
```

Select the group.

```
40# C1-plan
    group A^      →
```

Press Arrow Right to go to the next screen.

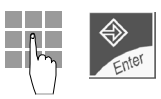
```
40# A per.1 7 days
fr. 0.2 to 0.2kg  →
```



Press ENTER. Enter the duration of period 1.

```
40# A per.1 6 days
fr. 0.2 to 0.2kg  →
```

Press ENTER to confirm the input.



Enter the start and end value of the concentrate quantity in kg (maximum concentrate quantity per type: 9.9 kg). Press ENTER to confirm the input.

```
40# A per.1 6 days
fr. 0.2 to 0.5kg  →
```

Press Arrow Right to move to period 2.

```
40# A per.2 42 days
fr. 0.5 to 2.0kg  →
```

Press ENTER and enter the duration of period 2.

Press ENTER to confirm the input.

Enter the start and end value of the concentrate quantity in kg. Press ENTER to confirm the input. There is no need to enter the start value of a period as this value corresponds to the end value of the preceding period.

Press Arrow Right to go to the periods 3 to 5. Proceed as with period 1 and 2.

After the 5th screen the display shows duration of the concentrate 1-plan and of the feeding plan.
Example with standard values:

```
40#   plan: 90 days
feed. plan: 77 days
```

The next screen shows plan requirement for the quantity of concentrate 1. Example with standard values:

```
40# target consum.
C1: 161 kg
```

Standard values of concentrate plan 1	
for all groups :	period 1: 7 days 0.2 kg
	period 2: 42 days from 0.2 to 2.5 kg
	period 3: 41 days from 2.5 to 2.5 kg
	period 4: not active
	period 5: not active
	duration of the plan: 90 days = 13 weeks
Standard values of concentrate plan 2	
for all groups :	periods 1 - 5 not active.

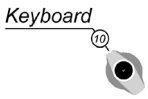
Concentrate 2-plan:

Enter 41 in keyboard menu 10 and proceed as with concentrate 1-plan.

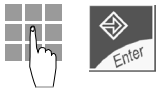
9.4 Entitlement Intervals

The day quantity of milk or concentrate is divided by the number of entitlement intervals. Example: If an animal is entitled to 10 liters between midnight and 8 p.m., this entitlement (in case you entered 20 entitlement intervals) will increase at each feeding interval (1 hour) by 0.5 L. However the milk is dispensed only in case the minimum saved quantity has been reached. *(Minimum saved quantity, see chapter 9.5, page 81, „Amount Limits“).*

9.4.1 Feeding Intervals



Turn the program switch to 10 = keyboard.



Enter 16. Press ENTER to confirm the input.

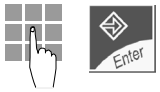
```
16# feed. interv.
    for group A^  →
```

Select the group.

```
16# feed. interv.
    for group B^  →
```

Press Arrow Right to move to the next screen. Press ENTER.

```
16# A 1. fr. 0 hrs
last till   20 hrs
```



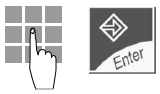
Enter duration of the feeding intervals. After the last feeding interval has lapsed, the total milk quantity will be available as remaining quantity. Press ENTER to confirm the input.

```
16# A 1. fr. 0 hrs
last till   20 hrs
```

Potential input: 6 p.m. to 11 p.m. Standard value: 8 p.m.

Move to the next screen. Press ENTER.

```
16#A feed. interv.
20 entitlem.interv.
```

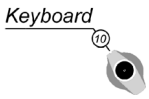


Enter the number of entitlement intervals. Press ENTER to confirm the input.

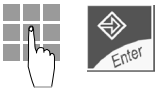
```
16#A feed. interv.
32 entitlem.interv.
```

Potential input: at least 2 entitlement intervals and 40 at most. Standard value for all four groups: 20 entitlement intervals.

9.4.2 Concentrate Intervals



Turn the program switch to 10 = keyboard.



Enter 44. Press ENTER to confirm the input.

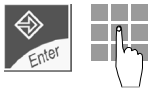
```
44# C intervals
    for group A^
```

Select the group.

```
44# C intervals
    for group B^
```

Press Arrow Right to move to the next screen. Press ENTER.

```
44# B 1. fr. 0 hrs
last till 20 hrs
```



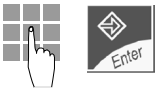
Enter duration of the concentrate intervals. After the last concentrate interval has lapsed, the total concentrate amount will be available as a remaining quantity. Press ENTER to confirm the input.

```
44# B 1. fr. 0 hrs
last till 23 hrs
```

Potential input: 6 p.m. to 11 p.m. Standard value: 8 p.m.

Move to the next screen. Press ENTER.

```
44#A C-intervals
20 entitlem.interv.
```



Enter the number of entitlement intervals.
Press ENTER to confirm the input.

```
44#A C-intervals
32 entitlem.interv.
```

Potential input: at least 2 entitlement intervals and 40 at most. Standard value for all four groups: 20 entitlement intervals.

9.5 Limited Quantities

The limited quantities control the assignment of milk and concentrate by the entitlement intervals. They are based on standard values with which the automatic feeder operates.

Minimum saved quantity:

The milk quantities are continuously saved during the day according to the interval feeding time system. By the minimum save-up quantity you can determine the number of milk portions to be saved until a milk portion is dispensed. This has an indirect influence on the number of meals.

The minimum save-up quantities may vary depending on the feeding periods, i.e. at the beginning of the feeding plan, little animals can be provided with small portions, such as e.g. 4 portions à 1.5 L/day. Later on, especially in calf rearing, the feeding times should be reduced to one by raising the minimum save-up quantities. The long time intervals between the feeding times increase the consumption of concentrate and raw food considerably thus reducing the tendency to mutual suckling.

The minimum save-up quantity for milk is entered per group and in liters, according to the minimum save-up quantity-plan.
The minimum save-up quantity for concentrate is entered per group as a percentage of the day quantity.

Example: Day quantity of animal 1A = 1.0 kg, day quantity of animal 2A = 2.0 kg. If, for instance, the minimum save-up quantity is 10 %, animal 1A will concentrate only if the save-up quantity is more than or equal to 100 g and animal 2A will get concentrate only if the minimum save-up quantity is more than or equal to 200 g.

Maximum quantity:

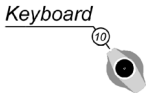
The quantity to be claimed is limited in order to prevent excessive consumption of milk or concentrate due to too high minimum save-up quantities. As soon as the maximum quantity is attained, the claim is blocked for 2 hours. The saved quantities are maintained. After the two hours have lapsed, the corresponding animal can claim the remaining quantity, but again only the maximum quantity. The maximum quantity can be set according to the age of the corresponding animal. By default the maximum quantity is always higher than the minimum save-up quantity by 0.5 litres.

Milk: You can enter the maximum quantity for milk per group and in liters according to the maximum quantity plan.
The maximum quantity cannot be smaller than the minimum save-up quantity.
Concentrate: You can enter the maximum quantity for concentrate per group and as a percentage of the day quantity.

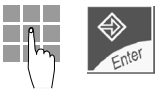
Carryover:

If an animal does not consume the total milk- or concentrate amount, the remaining quantity will be carried over to the following day. Consequently, the value at day-shift is not zero but it corresponds to the carryover. The carryover can be bound to the minimum save-up quantity, i.e. the carryover is at most as high as the minimum save-up quantity.

9.5.1 Minimum Save-Up Quantity and Maximum Quantity for Milk



Turn the program switch to 10 = keyboard.



Enter 15 and press ENTER to confirm the input.

```
15# feeding       →
   amount limits^
```

Select submenu „Amount limits“.

```
15# feeding       →
   amount limits^
```

Press Arrow Right to go to the next screen.

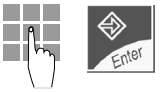
```
15# limits        →
    group A^
```

Select the group.

```
15# limits        →
    group A^
```

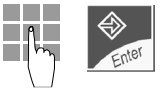
Move to the next screen and press ENTER.

```
15# A per.1 14 days
min:1.5L max:2.0L →
```



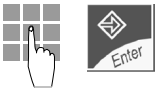
Enter the number of days for period 1. Press ENTER to confirm the input.

```
15# A per.1 15 days
min:1.5L max:2.0L →
```



Enter the milk amount in litres for the minimum save-up quantity and press ENTER.

```
15# A per.1 15 days
min:1.7L max:2.0L →
```



Enter the milk amount in litres for the maximum quantity and press ENTER. The maximum quantity cannot be smaller than the minimum save-up quantity. For the periods 2-5, proceed as for period 1.

```
15# A per.1 14 days
min:1.7L max:2.2L →
```

The last screen shows the duration of the plan referring to limited quantities as well as the duration of the corresponding feeding plan.

```
15#   plan: 77 days
feed. plan: 77 days
```

Standard values for minimum save-up quantity and maximum quantity of the groups A, B, C and D:

	Period	Minimum save-up quantity	Maximum quantity
Group A	1: 14 days	1.5 L	2.0 L
	2: 14 days	2.0 L	2.5 L
	3: 49 days	2.5 L	3.0 L
	4 + 5: not active as a standard		
Group B	1: 14 days	1.5 L	2.0 L
	2: 14 days	2.0 L	2.5 L
	3: 42 days	2.5 L	2.5 L
	4 + 5: not active as a standard		
Group C	1: 14 days	1.5 L	2.0 L
	2: 14 days	2.0 L	2.5 L
	3: 36 days	2.5 L	3.0 L
	4 + 5: not active as a standard		
Group D	1: 7 days	1.0 L	1.5 L
	2: 14 days	1.5 L	2.0 L
	3: 14 days	2.0 L	2.5 L
	4: 36 days	2.5 L	3.0 L
	5: not active as a standard		

9.5.2 Carryover of the Milk

Select submenu „Carryover“.

```
15# feeding      →
   carryover^
```

Go to the next screen.

```
15# carryover    →
   Gr.A^: no
```

Select the group.

```
15# carryover    →
   Gr.A^: no
```

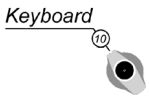
Select „yes“ or „no“ and press ENTER to confirm the input.

```
15# carryover    →
   Gr.A^: yes
```

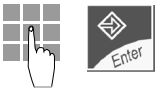
„Carryover, yes“ means that the carryover is bound to the minimum save-up quantity.
„Carryover, no“ means that the remaining quantity is not carried over to the following day.

Standard value: „Carryover, no“

9.5.3 Limited Quantities for Concentrate



Turn the program switch to 10 = keyboard.



Enter 42 and press ENTER.

```
42# concentrate   →
minimum save up^
```

Select submenu „Minimum Save Up“.

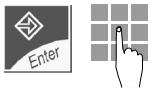
```
42# concentrate   →
minimum save up^
```

Press Arrow Right to go to the next screen.

```
42# save up       →
group A^   10%
```

Select the group.

```
42# save up       →
group A^   10%
```



Press ENTER. Enter the minimum save-up quantity as a percentage of the day quantity.

Press ENTER to confirm the input.

Standard value: minimum save-up quantity for all four groups 10 %.

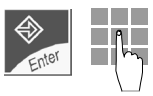
Select submenu „Maximum quantity“.

```
42# concentrate   →
    max. quantity^
```

Move to the next screen.

```
42# max. quantity →
group A^   50 %
```

Select the group.



Press ENTER. Enter the maximum quantity as a percentage of the day quantity.

Press ENTER to confirm the input.

Standard value: maximum quantity for all four groups 50 %.

9.5.4 Carryover of the Concentrate

Select submenu „Carryover“.

```
15# concentrate   →
   carryover ^
```

Move to the next screen.

```
15#  carryover    →
     Gr.A^: no
```

Select the group.

```
15#  carryover    →
     Gr.A^: no
```

Select „yes“ or „no“. Press ENTER to confirm the input.

```
15#  carryover    →
     Gr.A^: yes
```

„Carryover, yes“ means that the carryover is bound to the minimum save-up quantity.
„Carryover, no“ means that the remaining quantity is not carried over to the following day.

Standard value: „Carryover, no“

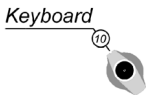
9.6 Warning Levels

The warning levels determine the warning threshold, i.e. the time or the value when a warning is triggered. All warning levels are fixed per group.
Chapter 13 „Warnings“, page 111 contains more detailed information on the different types of warnings.

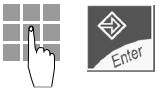
Milk There are milk-related warning levels for consumption, feeding speed and breaks.

Concentrate There are concentrate-related warning levels for warning today, day warning and 3-day warning. You can suppress the concentrate warning for a certain time because at the beginning little animals do not reliably consume concentrate.

9.6.1 Warning Levels for Milk



Turn the program switch to 10 = keyboard.



Enter 20 and press ENTER to confirm the input.

```
20# warning level →
    feeding^
```

Select submenu „Feeding“.

```
20# warning level →
    feeding^
```

Press Arrow Right to go to the next screen.

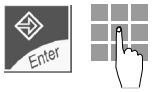
```
20# warning level →
    for group A^
```

Select the group.

```
20# warning level →
    for group A^
```

Move to the next screen and press ENTER.

```
20# A consum. 80% →
feeding speed 70%
```

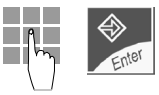


After „Consumption“ press ENTER again. Next to „Feeding Speed“ enter the corresponding warning level.

Press ENTER to confirm the input.

Go to the next screen and press ENTER.

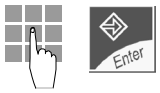
```
20# A breaks      →
no additives  2
```



Enter the warning level for breaks without additive. Press ENTER to confirm the input.

Move to the next screen and press ENTER.

```
20# A breaks      →
with additives  2
```



Enter the warning level for breaks with additive. Press ENTER to confirm the input.

Standard values for all four groups:
Consumption 80 %
Feeding speed 70 %
Breaks without additive 2
Breaks with additive 2

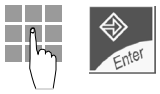
9.6.2 Warning Levels for Concentrate

Select submenu „Concentrate“.

```
20# warning level →
    concentrate^
```

Go to the next screen and press ENTER.

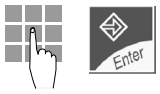
```
20# A for 40 days →
warning suppression
```



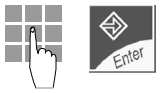
Enter the number of days for warning suppression at the beginning after housing. Press ENTER to confirm the input.

Move to the next screen. Press ENTER.

```
20# A C1  8 hrs   →
warning today 70 %
```



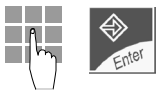
For concentrate type 1, enter the beginning of warning today. Press ENTER to confirm the input.



Enter the warning level. Press ENTER to confirm the input.

Go to the next screen and press ENTER.

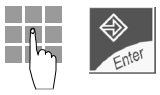
```
20# A C1          →
day warning 70 %
```



Enter the warning level for day warning for concentrate type 1. Press ENTER to confirm the input.

Move to the next screen. Press ENTER.

```
20# A C1          →
3-days-warning 40 %
```



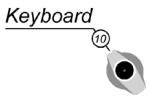
Enter the warning level for 3-day warning for concentrate type 1. Press ENTER to confirm the input.

Enter the warning level for concentrate type 2 into the next three screens.

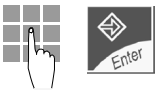
Standard values for all four groups:
Warning suppression: 40 days
Warning today as of 8 o’clock: 70 %
Day warning: 70 %
3-day warning: 40 %

9.7 Machine Data: Station Number

The station number is an internal company designation of the automatic feeders for plants with more than one automatic feeder. It facilitates identification of each individual automatic feeder connected to the PC-program „KalbManager“ or in case one printer is used for several feeders. As automatic feeders are factory-delivered with station number „1“, as of 2 feeders you have to change this number accordingly.



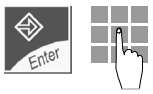
Turn the program switch to 10 = keyboard.



Enter 1 and press ENTER to confirm the input.

Go to the second screen. The display shows the abbreviation „ME“ in the second line.

```
1# station-No.: 1
KY2-099-MEIVUS-0.16
```



Press ENTER. Enter the station number (figure between 1 and 25).

Press ENTER to confirm the input.

Standard value: 1
Version: The display shows the designation of the program version in the second line.
Meaning of the characters:
KY2 = Combi with double priority control
099 = max. 99 animals or collars can be managed
ME = Mikroerkennung = Micro-Identification
IV = Intervall = Interval Feeding Time System
US = English Language
0.16 = Version number

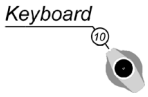
9.8 Restricted/Ad Libitum Mode

By standard the automatic feeder operates in the restricted mode. Yet you can also commute to the ad libitum mode.

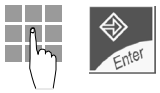
Restricted In the restricted mode the automatic feeder operates with animal identification, i.e. the animals are fed individually and in a restricted way and all data are recorded per animal.

Ad Libitum In the ad libitum mode the automatic feeder operates without animal identification. In feeding mode, a new portion is prepared each time the electrode in the mixer jar is free. If the automatic feeder is equipped with two feeding stations, both box valves are open. The concentrate feeders dispense the next portion each time the feeding bowl is empty.

9.8.1 Restricted/Ad Libitum Mode (Automatic Feeder)



Turn the program switch to 10 = keyboard.



Enter 2 and press ENTER to confirm the input.

```
2# restricted yes
    ad lib     no
```

Select „yes“ for restricted mode or „no“ for ad libitum mode. Press ENTER to confirm the input.

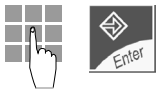
```
2# restricted yes
    ad lib     no
```

Go to the next screen. The display shows the milk amount prepared yesterday and today.

```
2#  today:  12 L →
ad lib yest.: 234 L
```

Press Arrow Right to go to the next screen. Press ENTER.

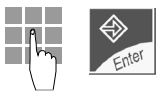
```
2# ad lib         →
milk ratio  100 %
```



Enter the milk ratio for the ad libitum portion. Press ENTER to confirm the input.

Move to the next screen and press ENTER.

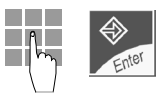
```
2# ad lib         →
concentration120g/L
```



Enter the concentration for the ad libitum portion and press ENTER to confirm the input.

Go to the next screen. Press ENTER.

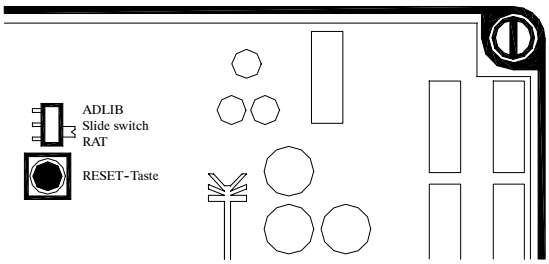
```
2# ad lib         →
additive 0g/L
```



Enter the additive amount for the ad libitum portion. Press ENTER to confirm the input.

9.8.2 Restricted/Ad Libitum Mode (Concentrate Feeders)

- Set the slide switch located on the Master board to the desired position.

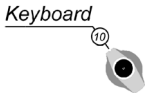


- Press the RESET-key.

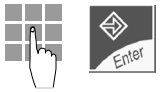
10 Milk Functions

In menu „Milk functions“ you can carry out all settings relating to fresh milk feeding.

10.1 Selecting the Milk Mode



Turn the program switch to 10 = keyboard.



Enter 3 and press ENTER to confirm the input.

```
3# milk functions^
                  →
```

Press Arrow Right to go to the next screen.

```
3# milk mode
        yes       →
```

Select „yes“ or „no“ and press ENTER. The automatic feeder operates in the milk mode.

„Milk Mode, no“ means that the automatic feeder runs in the water mode, i.e. no milk is fed. It is advisable to carry out this setting, if no milk is fed over a long period of time.

10.2 Commuting to Milk Powder Mode

If the milk tank is empty, the automatic feeder will switch off or commute to milk powder mode.

```
3# if milk empty
change to MP  yes
```

„Change to MP, yes“ means that the automatic feeder continues to operate in the milk powder mode as soon as the fresh milk tank is empty.
„Change to MP, no“ means that the automatic feeder switches off as soon as the fresh milk tank is empty.

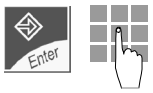
Select „yes“ or „no“ and press ENTER to confirm the input.

Take care that the powder hopper is always filled with milk powder!

10.3 Entering the Milk Value

The milk value is defined as the content of solid matter (SM-content) of the milk. The SM-content of whole milk corresponds to approx. 120 - 130 g/L.

```
3# milk value
120 g/L SM
```



Press ENTER and enter the SM-content of the milk.

Press ENTER to confirm the input. After the automatic feeder has commuted to the milk powder mode resp. the milk/water-mix-mode, the missing milk will be replaced by water and MP.

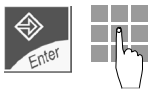
The concentration of a feeding portion is always taken from the concentration plan. If the entered concentration value is below or above the milk value, either water or MP will be added to the milk. In the milk/water-mix-mode, MP is automatically added to the water until the concentration set in the concentration plan is reached.

Standard value for the milk value: 120 g MP/litre

10.4 Activating Milk Expelling

If the automatic feeder operates in the milk mode, a warm milk portion in the heat exchanger is always ready for demand. This milk portion can be replaced by a water portion after a set time. The heat exchanger is then filled with water and not with milk anymore.

```
3# Milk expelling
after 1.5 h pause
```



Press ENTER. Enter a pause. Potential input: 1 to 9 hours.

Press ENTER to confirm the input.

The pause is defined as the time after dispense of the last milk portion. After this time has lapsed the milk portion in the heat exchanger is replaced by a water portion. The portion in the mixer jar is released for the animal that is identified next. If the animal does not drink up the available milk, the remaining portion will be pumped off automatically via the mixer outlet valve after a set time.
See chapter 14.5.4, page 137, „Cleaning, Cleaning Settings, Remaining Portion“.
If the water portion is taken from the heat exchanger, the water will be evacuated via the mixer draining valve. Only then, a milk portion will be dispensed.

If the automatic feeder operates in the water mode or the heat exchanger is filled with a water portion, milk expelling will not take place.

Standard value for milk-expelling: after 1.5 hours

10.5 Selecting the Milk Ratio for Change-Over to Single Heating Circuit

This menu is displayed only if you select the heat exchanger with separate heating circuits with circulation pump in Setup.

Press Arrow Right to go to the next screen. Select the milk ratio (30 % - 90 % or 10 % - 90 % provided that the automatic feeder is equipped with a circulation pump).

```
3# milk ratio < 30%
one heat. circ. yes
```

Press ENTER.

If all animals fall below the set threshold value for milk ratio, the automatic feeder will automatically commute to the „one circuit“-mode at daily midnight calculation. Both milk and water are taken from the stainless steel coil in the heat exchanger *(refer to chapter 8.1 ff, 64 ff, „Functioning of the Automatic Feeder“, „Preparing the Milk Portions“)*.

Standard value for the milk ratio in case of change-over mode: 30 %.

10.6 Entering the Milk Ratio Plan

The milk ratio plan is divided into 5 periods. You can enter the milk composition (fresh milk and milk powder) for each group. Milk and water can be mixed from 30 % to 90 % in 1 % steps. If the automatic feeder is equipped with a heat exchanger with circulation pump, milk and water can be mixed from 10 % to 90 % in 1 % steps.

The milk concentration is determined by the concentration plan in consideration of the milk value (= solid matter content of the milk). *Refer to the milk ratio plan in the annex of this instruction manual.*

If some animals are fed either with milk or with MP+water, you have to allocate them to different feeding groups. (The animals can nevertheless be together in the same group box). In case e.g. the animals of group A should only get milk, you have to enter the desired milk ratio into the milk ratio plan. In case e.g. the animals of group B should only get MP+water, you have to set the milk ratio to „0“ for all periods in the milk ratio plan.

Select submenu „Milk Ratio Plan“.

```
3# milk ratio plan^
                    →
```

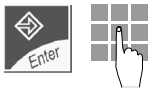
Go to the next screen.

```
3# milk ratio plan^
   group A^         →
```

Select the group.

Move to the next screen.

```
3# A per.1 77 days
fr. 100 to 100 %  →
```

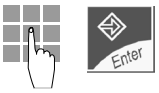


Press ENTER and enter the duration of period 1.

```
3# A per.1 7 days
fr. 100 to 100 %  →
```

Press ENTER to confirm the input.

```
3# A per.1 7 days
fr. 100 to 100 %  →
```



Enter the milk ratio at the beginning and at the end of the period. Press ENTER.

```
3# A per.1 7 days
fr. 100 to 100 %  →
```

Move to the next screen for the periods 2 to 5 and proceed as with period 1.

```
3# A per.2 28 days
fr. 100 to  25 %  →
```

Go to the next screen. The display shows the duration of the milk ratio plan and the feeding plan.

```
3#    plan: 77 days
feed. plan: 77 days
```

Standard value for all 4 groups:
Milk ratio period 1 = 100 %
Periods 2 – 5 are not active by standard.

11 Additives

Two additive dispensers are available: one for powder and another for liquid additives. Please note that you cannot utilize both dispensers simultaneously.

In addition, a special electrolyte program allows you to prevent or treat scours.

Electrolyte and milk can be fed alternately. On the one hand this ensures that the animals are provided with the vital nutriments of the milk, on the other hand the electrolyte compensates for the loss of liquid thus stabilizing the mineral balance.

Do not administer the electrolyte solution together with the milk. This may limit its effectiveness.

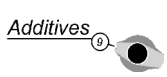
The switch menu „Additives“ contains the following submenus:

- Distribute medicine
- Distribute electrolyte
- Make out medicine prescriptions
- Make out electrolyte prescriptions
- Block remaining portion with additive
- Additives Info

Below you will find the description of all steps that have to be taken to activate a prescription or to allocate it to individual animals or groups. Please observe the package insert. Discuss the dosage with the veterinary, if necessary.

11.1 Making Out Medicine Prescriptions

You have to make out a prescription before storing it and before starting to administer an additive to the animals. The prescription is then kept up until you change it.



Turn the program switch to 9 = additives. The display shows:

```
  medicine      →
distribute^
```

Press Arrow Up or Arrow Down to move to menu „Make Out Medicine Prescriptions“.

```
medicine-prescr.^ →
  make out
```

Press Arrow Right to move to the next screen.

```
  prescr. 1^    →
   select
```

Press Arrow Up or Arrow Down to select the prescription that has to be made out. You can enter up to 4 prescriptions.

```
  prescr. 1^    →
   select
```

Press Arrow Right to move to the next screen.

```
  prescr. 1     →
  g/100kg^?  yes
```

Select the desired distribution (g/100 kg, g/day, g/L).

Enter „yes“ to select the desired distribution.
Press ENTER to confirm the input.

Medicine distribution is either milk-dependent in grams per liter (g/L) or weight-dependent in grams per 100 kg animal weight (g/100 kg) or it is related to the day-quantity per animal and day (g/day).

Drink-dependent additive distribution:

Each milk portion contains the same additive amount, i.e. animals getting more milk will get more additive than animals getting less milk. Example: a 50 kg animal gets 8 L milk per day, a 100 kg animal 2 L milk per day. In case the entered medicine amount is 2 g/L, the 50 kg animal will get 16 g additive per day, whereas the 100 kg animal will only get 4 g per day.

Weight-dependent additive distribution:

The distributed additive amount depends on animals' weight, i.e. heavy animals get more additive than light-weight animals. If no animal scales is connected, the weight entered at registration will be updated by a special factor corresponding to animals' natural weight development. If an animal scales is connected, the weight and the daily weight gain will be determined automatically.

Additive distribution in grams per day:

If the additive is distributed in grams per day, the additive amount will correspond to the amount per animal and day. The additive amount will neither depend on the milk amount nor on animal's weight.

If the additive is distributed in g/100 kg and g/day you may choose how often the additive should be distributed. Choose between the following settings: 1 time (once)/day, 2 times (twice)/day or distribution to all portions.

Press Arrow Right to move to the next screen.

```
distribution      →
2 times/day^? yes
```

Press Arrow Up or Arrow Down to select the desired distribution (1 time/day, 2 times/day, distribution to all portions).

If you choose 1 time/day and 2 times/day, distribution will depend on the minimum save-up quantity.

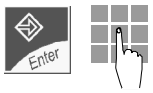
- distribution 1 time/day: If an animal is entitled to e.g. 3 liters with a minimum save-up quantity of 2 liters, the entered medicine amount will be added to the first 4 milk portions prepared in the morning.
- distribution 2 times/day: the medicine amount is splitted up, half of the medicine amount is added to the first milk portions prepared in the morning, the remaining quantity is added to the first milk portions prepared in the afternoon (in accordance with the minimum save-up quantity). First half of the day: 0 - 12 a.m., second half of the day: 12 a.m. - 12 p.m.
- distribution to all portions: the medicine is added to each milk portion.

Enter „yes" to select the desired distribution. Press ENTER to confirm the input.

Press Arrow Right to move to the next screen.

```
period 1    0 days
fr.  0 to   0 g   →
```

The prescription plans can be splitted up into 5 periods like the feeding- and the concentration plans (P1 - P5). This ensures e.g. that the additive amount is distributed and raised over a long period of time or reduced at the end of treatment.

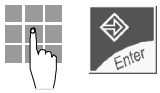


Press ENTER. Enter the duration of period 1 in days.
Example:

```
period 1    3 days
fr.  0 to   0 g   →
```

Press ENTER to confirm the input.

```
period 1    3 days
fr.  0 to   0 g   →
```



Enter the initial and the end quantity of period 1 in grams and press ENTER to confirm each. Example:

```
period 1    3 days
fr. 10 to   20 g  →
```

The portion size of the additive amount has to be between 2 g/L and 20 g/L. If the additive is distributed to all portions per day, you have to consider the largest and the smallest day quantity. If the portion size is below 2 g/L, add glucose or milk powder to the additive in order to get larger portions.

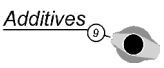
Move to the next screen. For the periods 2 to 5, proceed as with period 1.

Unlike the feeding plans, after pressing ENTER, the final value of the preceding period is not automatically taken over as initial value. You can enter each period individually.

The prescriptions are **not** bound to animal's housing date. Before starting additive distribution, you have to activate a prescription in Menu „Distributing the Medicine Prescription" or „Distributing the Electrolyte Prescription". After a feeding plan has lapsed, the milk will nevertheless be distributed to the corresponding animal (according to the last day quantity) for the duration of additive distribution.

11.2 Making Out the Electrolyte Prescription

You can distribute powder electrolyte only via the dispenser for powder additives. Make out a prescription before starting electrolyte distribution. After you made out the electrolyte prescription, it will be stored and kept up until you change it. The day quantity and concentration (g/L) of electrolyte drinking is related to animal's weight and the severity of scours.



Turn the program switch to 9 = additives. The display shows:

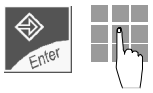
```
   medicine      →
 distribute^
```

Press Arrow Up or Arrow Down to move to the menu „Make Out Electrolyte Prescription".

```
electrolyte-prescr→
   make out^
```

Go to the next screen.

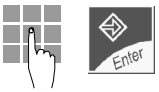
```
   electrolyte
for 0 days  0 g/L →
```



Press ENTER. Enter the number of days for electrolyte distribution.

```
   electrolyte
for 5 days  0 g/L →
```

Press ENTER to confirm the input.

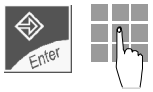


Enter the electrolyte amount to be daily fed (in grams per liter). Press ENTER to confirm the input.

```
   electrolyte
for 5 days  20 g/L →
```

Press Arrow Right to move to the next screen.

```
   per visit 1.5L
0 days without milk
```

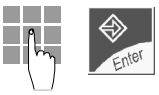


Press ENTER. Enter the maximum quantity of electrolyte drinking to be fed per visit. Potential input: up to 9.5 liters.

```
   per visit 1.0L
0 days without milk
```

We recommend to make 1.0 to 1.5 liters electrolyte drinking available to the animal each time it visits the feeding station.

Press ENTER to confirm the input.

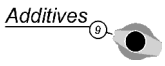


Enter the number of days for electrolyte distribution.
Press ENTER to confirm the input.

```
   per visit 2.5L
3 days without milk
```

11.3 Distributing the Medicine

After you have made out a prescription, you have to activate it resp. allocate it to individual animals or to a group. The medicine can also be fed to the animals as a prophylaxis. If this prophylaxis is active, in the future, after housing, each animal will automatically be fed with medicine according to the selected prescription.



Turn the program switch to 9 = additives.
The display shows:

```
   medicine      →
 distribute^
```

Press Arrow Right to move to the next screen.

```
 animal-specific  →
  distribution^
```

Press Arrow Up or Arrow Down to select whether the medicine has to be distributed to individual animals, to a group or to all animals as a prophylaxis.

Press Arrow Right. The display shows the duration and the dosage of medication.

```
*X1^ g/100kg 5 d. →
 from 5 to 5 g
```

Select the desired prescription (1-4) according to which the animals should get their medicine.

Press Arrow Right to move to the next screen.

```
1A^  X1
apply          no
```

Press Arrow Up or Arrow Down to select the animal to be treated with medicine.

Enter „yes“ if the animal has to be treated with medicine according to the entered prescription. Press ENTER to confirm the input.

```
1A^  X1
apply          yes
```

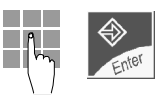
Enter „no“ if the animal should not get any medicine. Press ENTER to confirm the input.

If you enter „yes“ and an animal scales is connected, the display shows:

```
1A anim. weight
correct  50 kg
```

If no animal scales is connected, the display shows:

```
1A^ weight  50 kg
LWG + 500 g/day
```



Key in the estimated animal weight and press ENTER to confirm the input.

If the additive has to be dispensed in accordance with weight, make sure that the entered animal weight is correct. Heavy animals get more additive than light-weight ones.

After you have confirmed animal’s weight, the display will show the number of the animal that is entitled to the additive next.

The animals can only be fed according to one powder additive prescription. If you try to select another prescription, the display will indicate that one or more animals are already being treated. Check these animals. Change the medicine in the additive dispenser if you want to activate another prescription.

```
X1  active
adjust treatment  →
```

Move to the next screen in order to change the additive.

```
change additives
X2  ?      no
```

Enter „yes“ to change the prescription. Press ENTER to confirm the input.

The prescription being fed to an animal or to a group is marked by an asterisk *.

```
  *prescr. 1^      →
    select
```

If a group or an animal are already being treated with medicine, the display shows:

```
in group A^        →
is already applied
```

Note: the animals being already treated at that time are shifted to the beginning of the prescription!

If an animal has not been registered yet in none of the groups, the display will show:

```
in group D^        →
no anim. registered
```

If no animal is treated anymore, the display will show:

```
no further         →
animals with X1
```

For „Medicine Distribution to Groups“, proceed as with „Animal-Specific Medicine Distribution“.

Press Arrow Up or Arrow Down to move to menu „Automatic Prophylaxis“. Here you can activate the automatic prophylaxis.

```
  automatic        →
  prophylaxis^
```

Press Arrow Right to move to the next screen.

```
    prescr. 1^     →
    select
```

Press Arrow Up or Arrow Down to select the desired prescription (1–4).

Press Arrow Right to go to the next screen.

```
R1   beginning
when registr.  no
```

Enter „yes“ to start distribution of the prescription at housing. Press ENTER to confirm the input.

```
R1   beginning
when registr.  yes
```

If another prescription is already being distributed, the following message will be displayed:

```
treatment with
X2 see additives
```

In case medicine distribution (as a prophylaxis) to an individual animal or to a group should be completed later on, you have to set distribution back to „no“. Whereas if in menu „Make Out Prescription“ you reduce the duration of an ongoing treatment, the treatment of an an-

imal will be interrupted automatically as soon as its duration has lapsed. In switch menu „Alarms“ you can view as an expire message that the plan relating to additive distribution has lapsed.

If the treatment has been completed according to the entered prescription, an expire message for the corresponding animal or group will be displayed in switch menu „ Alarms“.

If you try to select a prescription that has not been made out yet, the display will show:

```
     X1
not yet made out
```

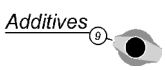
In this Menu you cannot make out a prescription. The display shows:

```
input only in
menu 'make out'
```

11.4 Distributing the Electrolyte

After you have made out the prescription for electrolyte distribution, you have to activate and assign it to individual animals or to a group. The additive amount can be dispensed automatically to all animals as a prophylaxis according to the prescription. Once this prophylaxis is active, in future, after housing, each animal will automatically get the entered electrolyte prescription.

The electrolyte can also be fed alternately to the milk. In this case, after an animal has claimed the milk amount to which it is entitled, feeding will be blocked for 2 hours. After the 2 hours have lapsed, the animal will be entitled to the available electrolyte drinking. Feeding is then blocked once again for 2 hours. After the 2 hours have lapsed, the animal may drink the available milk. If the animal only gets electrolyte drinking, the pause between the different electrolyte drinkings has to be 4 hours.



Turn the program switch to 9 = additives. The display shows:

```
   medicine      →
 distribute^
```

Press Arrow Up or Arrow Down to move to the menu „Distribute Electrolyte“.

```
  electrolyte    →
 distribute^
```

Press Arrow Right to move to the next screen.

```
animal-specific →
 distribution^
```

Press Arrow Up or Arrow Down to select whether the medicine has to be distributed to individual animals or to a group or to all animals as a prophylaxis.

Press Arrow Right. The display shows once again the duration of distribution as well as the concentration of the electrolyte solution.

```
*EL g/L          →
 for 5 days 20 g/L
```

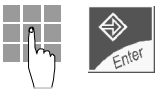
In the next screen you have to activate electrolyte distribution:

```
 5B^ EL
apply          no
```

Enter „yes“ if you want to distribute electrolyte to an individual animal.

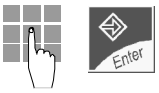
```
 5B^ EL
apply         yes
```

Enter „no“ if you do not want to distribute electrolyte to an animal.



If you select „yes“, here you can enter the maximum quantity that is available for each individual animal each time it visits the feeding station (max. 9.5 L). Press ENTER to confirm the input.

```
5B^ per visit 9.5L
         with milk^
```



If, for a certain period of time, you want to feed only electrolyte solution, change the default setting „with milk“ into „x days without milk“. Then, enter the number of days and press ENTER to confirm the input.

```
   per visit 2.5L
3 days without milk
```

The following display appears (ex.):

```
 5B^ dr.: 6.0L
for 3 days -0.5L
```

Here you can decrease the feed amount. In addition, you can enter the duration of this reduction.

You can also decrease the feed amount per group:

```
gr.:A dr.: -50%
+/- delete: no
```

If a reduction/supplement (deviations) is already active for an animal of the selected group, in the second line you can enter whether it should be maintained or whether this animal should get the same reduction like the rest of the group.

The menu succession for group distribution is identical to the one for individual distribution. For menu succession relating to electrolyte prophylaxis, refer to chapter 11.1, page 95, „Making out Medicine Prescriptions“.

In case electrolyte distribution to an individual animal or to a group should be completed later on, you have to set distribution back to „no“. Whereas, if in menu „Making Out Electrolyte Prescription“, you reduce the duration of an ongoing treatment, the treatment of an animal will be interrupted automatically as soon as its duration has lapsed. In switch menu „Alarms“ you can view as an expire message that the plan relating to additive distribution has lapsed.

If the treatment has been completed according to the entered prescription, an expire message for the corresponding animal or group will be displayed in switch menu „ Alarms“.

If you try to select a prescription that has not been made out yet, the display will show:

```
     X1
not made out yet
```

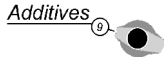
In this Menu you cannot make out a prescription. The display shows:

```
inputs only in
menu 'make out'
```

11.5 Blocking the Remaining Portion with Additive

In this menu feeding can be blocked for those animals that under no circumstances should get additive. If an animal getting additive breaks off the visit to the feeding station thus leaving a remaining portion in the mixer jar (the long electrode is covered), the box valves leading to the feeding stations will close. This may last until an animal entitled to additive enters the feeding station and drinks up the liquid in the mixer jar or the remaining portion is drained off automatically via the outlet valve after a pre-set time. Refer to chapter 14.5.4, page 137, „Cleaning Settings, Remaining Portion“.

The electrolyte solution cannot be blocked.



Turn the program switch to 9 = additives. The display shows:

```
   medicine      →
 distribute^
```

Press Arrow Up or Arrow Down to move to menu „Block Remaining Portion with Additive“.

```
remain. port. with→
additive block^
```

Press Arrow Right to go to the next screen.

```
11A^rem. port. with
additive block no
```

Select the animal number.

Enter „yes“ to block the remaining portion with additive for an animal that should not get any additive.

```
11A^rem. port. with
additive block  yes
```

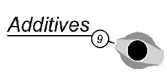
Enter „no“ if you don’t want to block the remaining portion with additive.

Enter the number of the animal that should be blocked or for which blocking should be cancelled.

If too many animals are blocked, it may happen that feeding mode will cut off over and over.

11.6 Additives Info

In menu „Additives Info“ you can view all information about additive feeding. The display only shows animals getting some additive.



Turn program switch to 9 = additives. The display shows:

```
   medicine      →
 distribute^
```

Press Arrow Up or Arrow Down to move to menu „Additives Info“.

```
   additives     →
    info^
```

Press Arrow Right to go to the next screen.

```
21C^ X1      20 g →
consumed     10 g
```

Press Arrow Up or Arrow Down to select the desired animal. The first line shows the day quantity of additive and the second line the additive amount already consumed.

```
21C^ X1      20 g →
consumed     10 g
```

Press Arrow Right to move to the next screen. The first line displays the day quantity of additive available yesterday and the second line the additive amount actually consumed yesterday.

```
21C^ X1      20 g →
yesterday    15 g
```

If no additive is active for the selected animal, the following message will be displayed:

```
21C^R1   yesterd. →
no application
```

If no additive is active for none of the animals, the following message will be displayed:

```
no additive active!
```

Press Arrow Right to move to the next screen. The display shows the number of breaks with additive today and yesterday.

```
21C^breaks, w.add.→
today 0  yesterd. 0
```

Press Arrow Right to go to the next screen. Here you can view the number of remaining days till the end of additive distribution as well as the number of feeding days till the end of the plan.

```
21C^X1    rest
13d., feed 64 d.  →
```

Press Arrow Right to move to the next screen. The display shows whether the corresponding animal gets a decreased or increased additive amount.

```
21C^X1       5g
+0 g/100kg = 5g   →
```

If electrolyte is dispensed, the abbreviation X (= prescription) will be replaced by EL.

12 Check Functions

12.1 Switch Position „Feeding Mode“

Feeding station without animal:

If milk is fed, the display will show:

```
milk and MP mode
dr-warn: 0  exp:0
```

If MP is fed, the display will show:

```
   MP mode
dr-warn: 0  exp:0
```

The display shows the number of warnings or expire periods:

```
milk and MP mode
dr-warn: 0  exp: 0
```

The display shows whether the machine operates in the ad libitum mode and how many litres have been dispensed yesterday and today:

```
ad lib yest. 250 L
       today  27 L
```

If the feed is entirely delivered via the stainless steel coil, the display will show the number of warnings and expire periods:

```
one heating circuit
dr-warn:     exp:
```

Feeding station with animal:

The display shows which animal is identified at present:

```
123A  feeding
      45.0kg 1.5 L
```

The display shows the current entitlement of the identified animal:

```
123A  feeding
      45.0kg 1.5 L
```

The current animal is displayed only in case the animal scales have been selected in Setup:

```
123A  feeding
      45.0kg 1.5 L
```

The display shows whether the sensor is free or covered:
□ Sensor free / Mixer jar empty
≡ Sensor covered / Mixer jar at least partly filled

```
123A
                  □
```

The display shows whether an animal has been identified and at which feeding station:

```
123A
≠                 1
```

≠ = Symbol for identification
1 = Feeding station 1
2 = Feeding station 2

The display shows whether animal’s entitlement is limited by the maximum quantity:

```
123A limit. feeding
      45.0kg 2.5 L
```

After the animal has claimed the maximum quantity, feed entitlement will be blocked for two hours.

The display shows whether animal's feed entitlement has been blocked because the animal has already consumed the maximum quantity:

```
123A  feeding
      blocked
```

The display shows whether the animal has to wait (2-4 hours) or not until it is fed again after having consumed electrolyte or milk. *See chapter 11.4, page 101, „Distributing the Electrolyte“*.

```
123Afeeding blocked
wait.time electrol.
```

The display shows whether the milk in the mixer jar should be blocked or not because the identified animal is in waiting time after having consumed electrolyte. *See chapter 11.4, page 101, „Distributing the Electrolyte“*.

```
123A blocked
feed in the mixer
```

12.2 Animal Verification

Menu „Animal Verification“ in switch position 4 contains all information about animals’ feeding behaviour, the concentrate feeder and the animal scales. While menu „Alarms“ in switch position 3 only displays the warning animals, menu „Verification“ in switch position 4 shows all check functions for all animals.

Menu „Animal Verification“ contains the following submenus:
- Feeding behaviour
- C1 and C2
- C1
- C2
- Visits
- Animal scales
- Number of animals

12.2.1 Feeding Behaviour

Submenu „Feeding Behaviour“ displays the values concerning today’s and yesterday’s feed entitlement, the breaks and the feeding speed. You will find more detailed information on „Breaks“ and „Feeding Speed“ in chapter 13 ff, page 111 ff, „Alarms“.

Select submenu „Feeding behaviour“.

```
Calves with right →
feeding behaviour ^
```

Go to the next screen. The upper line shows release time of the milk and the current feed entitlement. The lower line shows in which feeding station the animal has been identified last (if no number appears but a dot instead, the animal has not been identified in none of the feeding stations), today’s milk quantity and today’s real consumption in litres (in brakkets).

```
12A^fr. 14.25 1.5L →
1(5.5) consu. 2.0L
```

Feed delay

If an animal is in a temporary feed delay after having claimed the maximum quantity, the display will show the following information:

```
1A^ block 110min →
1(6.0) consu. 1.5L
```

The upper line indicates the remaining time until the end of feed delay. *(For the lower line, refer to the previous screen).*

Go to the next screen. The upper line indicates the milk quantity of yesterday. The lower line first shows the number of the feeding station where the animal has been identified last as well as the real consumption as a percentage and in litres.

```
12A^   yest.  5.5 →
2/consu. 100%=5.5L
```

Press Arrow Right to move to the next screen. The second line indicates the number of breaks without additive.

```
12A^breaks,no add.→
today 0 yest. 0
```

Press Arrow Right to move to the next screen. The second line indicates the number of breaks with additive.

```
12A^breaks,w. add.→
today 0 yest. 0
```

Go to the next screen. The second line shows today’s feeding speed compared to the average of the last 3 days as a percentage and in litres per minute.

```
12A^dr.speed L/min
today 98% = 1.32  →
```

Move to the next screen. The second line shows yesterday's feeding speed compared to the average of the last 3 days as a percentage and in litres per minute.

```
12A^dr.speed L/min
yest. 103%=1.39   →
```

12.2.2 C1 and C2

This submenu contains all information on concentrate type 1 and 2.

Select submenu „C1 + C2".

```
animal verific.   →
C1 + C2
```

Move to the next screen. The first line indicates the available C1- and C2-quantity. The second line shows in brackets the day quantity of concentrate and the concentrate amount actually consumed.

```
5B^   avail. 0.23 →
(0.50) consu.0.09kg
```

Move to the next screen. The first line shows yesterday's day quantity of concentrate. The second line shows the concentrate amount actually consumed as a percentage and in kilograms.

```
5B^ yest.   0.50  →
consu. 90% =0.45kg
```

12.2.3 Animal Verification C1

This submenu contains information on consumption, deviation from average consumption and on dosing quantity for concentrate type 1.

Select submenu „C1".

```
animal verific.   →
C1 ^
```

Go to the next screen. The first line shows the available quantity of C1. The second line indicates in brackets the day quantity and the real consumption in kg.

```
5B^   avail. 0.12 →
(0.30) consu.0.10kg
```

Go to the next screen. The first line indicates yesterday's day quantity. The second line shows yesterday's real consumption as a percentage and in kilograms.

```
5B^   avail. 0.30 →
consu. 90% = 0.27kg
```

Move to the next screen. The second line displays the quantity consumed today by the animal compared with its average in kilograms and as a percentage.

```
5B^ C1 today      →
cons. 0.12kg=85% of ϕ
```

Go to the next screen. The second line indicates the quantity consumed yesterday by the animal, compared with its average of the last 3 days, in kilograms and as a percentage.

```
5B^ C1 yesterday  →
cons. 0.13kg=93% of ϕ
```

Move to the next screen. The display shows information on the dosing amount per portion.

```
5B^ dosing amount
       1 g
```

12.2.4 Animal Verification C2

This submenu displays the information about consumption, deviation from average consumption and dosing quantity for concentrate type 2. The screens for C2 correspond to those for C1.

12.2.5 Visits

This submenu contains information on the number of visits to the feeding station and to the concentrate station.

Select submenu „Visits“.

```
animal verific.  →
visits ^
```

Go to the next screen. The second line indicates the number of entitled visits (today and yesterday) to the feeding station.

```
12B^ visits fed  →
today 3  yest. 4
```

Move to the next screen. The second line shows the number of non entitled visits (today and yesterday) to the feeding station.

```
12B^visits not fed→
today 4  yest. 7
```

Go to the next screen. The second line indicates the number of entitled visits (today and yesterday) to the concentrate station.

```
12B^visit with C →
today 6  yest. 9
```

Move to the next screen. The second line shows the number of non entitled visits (today and yesterday) to the concentrate station.

```
12B^visits none C→
today 3  yest. 6
```

12.2.6 Animal Scales

In submenu „Animal Scales“ you can view all information on the animal scales.

Press Arrow Up or Arrow Down to move to the menu „Animal Scales“.

```
animal verific.  →
animal scales^
```

Press Arrow Right to move to the next screen.

```
3A^ anim. weight →
examine in list
```

Press Arrow Up or Arrow Down to select the animal whose weight has to be checked.

Press Arrow Right to move to the next screen. The first line shows the number of visits to the feeding station of the selected animal. The second line indicates the number of weighing used to calculate the animal weight, as well as the weight of the corresponding animal resulting from it. The display always shows the last visit with the current animal weight.

```
3A  visit today 2^
num:6   w: 38.0kg →
```

Press Arrow Up or Arrow Down to check the weight determined during the relevant visit.

Press Arrow Right to go to the next screen. The display shows the day weight of yesterday or the day before yesterday of the corresponding animal. The day weight is always the average weight resulting from all visits of that day.

```
3A  day weight
yesterd^  w:151.0kg
```

Press Arrow Up or Arrow Down to view by turns the day weight of yesterday and the day before yesterday.

12.2.7 Number of Animals

This submenu shows the number of registered animals, the numbers still available and the number of registered animals per group.

Select submenu „Number of animals“.

```
animal verific.   →
number of animals
```

Go to the next screen. The display indicates the number of registered animals as well as the numbers still available.

```
registered: 24    →
available:   5
```

Move to the next screen. The display shows the number of registered animals per group.

```
registered calves
group A^:  12
```

Select the group. After a short calculation time, the display indicates the number of animals registered in the selected group.

13 Alarms

The automatic feeder and the concentrate feeder are continuously monitored by the processor control. In switch position 3 = alarms you can view all those alarm messages relating to the failures of the automatic feeder or to animals' drinking behaviour.
The failures that interrupt the feeding mode are immediately displayed in program switch position 1 = „Feeding Mode".

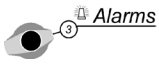
13.1 Machine Alarms

Menu „Machine Alarms" contains all alarm messages referring to the failures of the automatic feeder. A bleep is emitted at regular intervals. The error message disappears as soon as an animal is identified.

In case failures relating to the concentrate feeder and/or the animal scales should occur, the feeding mode will be kept up. In case of failures in the feeding mode due e.g. to water shortage, the concentrate mode will be kept up.

If failures occur, the display will show:

```
machine alarms
see alarms
```



Turn the program switch to 3 = alarms to view the error messages.

13.1.1 Connection Error concerning Animal Scales or Concentrate Feeder

If the connection between the Stand Alone and the concentrate feeder is interrupted, the display will show the following error message:

```
   silo 1&2
connectioninterrup.
```

Potential corrective action:

- Check connection cable to the concentrate feeders.
- Check power supply of the concentrate feeders.

If the connection between the Stand Alone and the animal scales is interrupted, e.g. the following error message will be displayed:

```
anim. scales 1&2
number errors: 1
```

After 11 connection errors to the animal scales an alarm is triggered.

Potential corrective action:

- Check connection cable to the animal scales.
- Check power supply of the animal scales.

The number of connection errors is automatically set to 0 during daily calculation. The automatic feeder retries to establish a connection to the concentrate feeder or to the animal sca-

les. Press „C“ to manually set back the connection errors to 0.

13.1.2 Checking the Calibration Values for Concentrate

If an animal enters a concentrate station where the concentrate has not been calibrated and is identified, the display will show an error message. The alarm-LED on the concentrate feeder starts flashing.

```
machine alarms
see alarms
```

In menu „Machine Alarms“ you are asked to calibrate the concentrate of the corresponding silo.

```
   silo 2
please calibrate !!
```

The alarm message disappears as soon as calibration has been completed.

13.1.3 The Shaft is Blocked

If the shaft is blocked, the following error message will be displayed:

```
  silo 1^
shaft blocked
```

The concentrate feeder is out of action and the alarm-LED on the concentrate feeder starts flashing.

Potential corrective action:

- Check whether some foreign matter has got caught in the shaft and remove it, if necessary.
- The motor sensor resp. motor/gear may be defective. In this case, contact Service.

13.1.4 Idling of the Shaft on the Concentrate Feeder

As soon as an animal consumes its concentrate portion, the dosing flap starts moving after approx. 5 - 6 seconds (= 5 revolutions of the shaft). If the flap does not move due e.g. to bridging of the feed, distribution will cut off without being deducted. After the animal has left the feeding station, dosing will be checked. If the dosing flap still does not move, an alarm will be triggered. The alarm-LED on the concentrate feeder starts flashing but the concentrate feeder does not switch off. As soon as the next animal enters the concentrate station, the feeder retries to dose the concentrate.

The error message indicates e.g. that 2 idlings of the shaft occurred in silo 1. The first line shows the date of last deletion of this error message.

```
  silo1^14.07.03
idling shaft: 2
```

Potential corrective action:

- Check whether the dosing flap is easily moving.
- Change position of the adjustable plate with reed switch.

- Check feed for bridging.

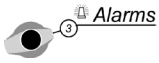
Press „C“ to delete the message. The date is then updated automatically.

13.1.5 Mixer Outlet

If during automatic mixer cleaning, heat exchanger cleaning or automatic calibration, the water in the mixer jar is not drained off within 2 minutes (the long electrode is not free), an alarm for mixer outlet will be triggered.

The display shows:

```
machine alarms
see alarms
```



Turn the program switch to 3 = alarms.

```
messages:^          →
mach. alarm:    1
```

Press Arrow Right to move to the next screen.

```
al. mixer outlet
to delete press 0/C
```

Potential corrective action:

- Empty the mixer jar, if necessary.
- Check the mixer outlet valve and clean it, if necessary.
- Check whether the feeding pump intakes some liquid.

Press „0/C“ to delete the error message after the mixer jar has been emptied.

13.1.6 Remaining Detergent

If during the cleaning processes with detergent (in case the automatic feeder is equipped with a detergent pump that has been previously activated in Setup) power failure occurs before the remaining detergent could be removed from the system, an alarm for remaining detergent will be displayed as soon as the automatic feeder reboots.
Feeding mode is blocked until the alarm message disappears.

The display shows:

```
remaining detergent
remove?          yes
```

If you want to remove the remaining detergent during the rinsing process, press ENTER to confirm „yes“. The rinsing process starts running automatically.

13.2 Animal Alarms

Menu „Animal Alarms“ contains all data referring to animals’ drinking behaviour that may lead to alarm messages as a result of the alarm levels. All alarms are animal-specific.

In switch position 4 = verifications you can view all animal data.

13.2.1 Drinking Alarms

Warning today

If an animal does not consume the available milk amount within 3 hours after release, it will be displayed in Warning Today.

Press „C“ to delete warnings today temporarily. They will reappear in feeding mode as the reason for the warning is still existing.
Warning today disappears automatically as soon as the animal has consumed the shortfall quantity.

Warning yesterday

Warning yesterday is determined during daily calculation. It is displayed for all animals having reached the alarm levels.

Press „C“ to delete warning yesterday. Warning yesterday is deleted automatically at the next daily calculation.

Warning yesterday will be displayed in case the milk has been released less than 2 hours before day change (0.00 h) and the animal has not claimed this amount until then.

Turn the program switch to 3 = alarms.

```
messages:^ dr: 2  →
C:0        exp:0
```

Select submenu „Warning Animals“.

```
warning animals^  →
feeding:    2
```

Move to the next screen.

```
1A^ fr. 9.30 2.0L →
1(6.0) cons. 0.0L
```

Warning today

In case of warning today, in the first line the display shows the time of release and the saved quantity in liters. The second line shows the number of the feeding station where the animal has been identified (when no number is displayed but a dot instead, the animal has not been identified at none of the feeding stations) as well as the day quantity of milk and the actual consumption in liters.

```
1A^ fr. 9.30 2.0L →
1(6.0) cons. 0.0L
```

Feed delay

If a warning animal is temporarily in feed delay after having consumed the maximum available quantity, the display will show the time left until the end of delay.

```
1A^ block  110min →
1(6.0) cons. 1.5 L
```

Warning yesterday

In case of warning yesterday the upper line shows yesterday’s milk amount. The lower line shows the number of the feeding

```
2B^ yest. 6.0     →
2/consu. 50% = 3.0L
```

station where the animal has been identified followed by the actual consumption in % and in liters. This animal appears e.g. in Warning Yesterday because yesterday it consumed only 50% of its day ration.

13.2.2 Break

A break occurs either when an animal leaves the feeding station before having emptied the mixer jar or when an animal does not drink up its portion within 2 minutes. Breaks indicate whether an animal has consumed its day ration or not.

We distinguish between breaks with additive and breaks without additive in order to find out whether the animals have not drunk up their milk portion because of the additive.

When a break occurs, the remaining quantity in the mixer jar will be released 5 minutes after the portion has been prepared, i.e. each animal can drink up the milk.

The lower line shows the number of warnings today and yesterday. The displayed animal appears as a warning animal because yesterday 2 breaks and today 1 break without additive occurred.

```
1A^ breaks,no add.→
today 1  yest. 2
```

13.2.3 Drinking Speed

If animals do no longer drink the available milk, their general state of health has already deteriorated considerably.

A decreasing drinking speed may indicate that the general state of health of the animal is deteriorating. If the drinking speed of many or all animals deteriorates, the following may be the reason for it: the suction hose is clogged, the milk is getting sour, the milk temperature has changed, a new teat is being utilized, etc.

The drinking speed is measured for each individual animal. The current drinking speed is compared with the average value of the last 3 days. The 3-day average is 100 %. As it takes 3 days to ascertain the 3-day average, no warning message relating to drinking speed will be displayed during the first 3 days after registration.

Warning today

The second line indicates the current drinking speed (today) as a percentage compared with the 3-day average as well as the corresponding figure in liters per minute. The displayed animal e.g. is a warning animal because it has drunk slowlier than usual and the drinking speed is below the alarm level of e.g. 80 %.

```
1A^ dr.speed L/min
today 72% = 0.82  →
```

Warning yesterday

The second line indicates yesterday's drinking speed as a percentage compared with the 3-day average as well as the value in liters per minute.

```
12A^dr.speed L/min
yest. 78% = 0.94  →
```

13.2.4 Additive Alarm

If an animal drinks up the milk portion in the mixer jar before the total additive amount has been added to the milk, the following warning message will be displayed:

```
17C^ additive alarm
long dosing time..s
```

If the dispensed additive amount falls below the minimum value of 1 gram per portion, the display will show the following warning message:

```
17C^ additive alarm
dos.quant. only ..g
```

13.2.5 Unknown Transmitters

If a Responder number that could not be allocated to none of the animal numbers (collar number) is read, it will be automatically registered. The same applies to a Responder number that has been allocated to a non registered animal number. Example: Responder number 1234 has been read and allocated to collar number 100. The animal number is available now but the animal has not been registered yet. If only the Responder number is displayed, it could not be allocated to none of the animal numbers.

```
unknown transmitter
No.: 1234      100a
```

If you activate automatic registration, each animal number will be registered automatically.

13.3 Concentrate Alarms

Warning today

Warning today is determined by the warning level and is displayed as of a certain time for those animals that have not consumed enough concentrate. Warning today disappears automatically as soon as the animal has consumed the total feed quantity.
You can delete warning today only temporarily. It reappears in switch position „Feeding Mode“ as the reason for the alarm message is still existing.

Warning yesterday

Warning yesterday is determined for each individual animal. It compares the feed quantity consumed during 1 day with the 3-day average.
Warning yesterday is determined during daily calculation. It is displayed for those animals having reached the warning level.

3-day warning

If the average consumption of the last 3 days compared with the set value of the concentrate plan is below the warning level, the corresponding animal will appear in 3-day warning.

Press „0/C“ to delete the 3-day warning.

If an animal appears in warning yesterday, the 3-day warning will not be displayed.

Turn the program switch to 3 = alarms.

```
messages:^ dr.: 1 →
C:2       exp.: 0
```

Select submenu „Warning Animals, C“ (C = concentrate).

```
warning animals^  →
C: 2
```

Move to the next screen.

```
1A^C1 today       →
cons.0.23kg=62% ofϕ
```

Warning today

The upper line shows the warning today for concentrate type 1 or 2. The lower line shows the consumed quantity in kilograms and the corresponding percentage of the 3-day average.

```
1A^C1 today       →
cons.0.23kg=62% ofϕ
```

Warning yesterday

The upper line indicates the warning yesterday for concentrate type 1 or 2. The lower line indicates the quantity consumed yesterday in kilograms and the corresponding percentage of the 3-day average.

```
1A^ C1 yesterday  →
cons.0.28kg=75% ofϕ
```

3-day warning

The upper line shows the 3-day warning for concentrate type 1 or 2. The lower line indicates the percentage of the set value.

```
1A^ C1 3-days-warn
75% fr. plan value→
```

13.4 Expire Date

In this menu, all animals for which a temporary action has lapsed, like e.g. addition to the feed quantity, are displayed as expire animals for the corresponding action.

Press „0/C“ to delete expire date messages. Expire date messages referring to the feeding and the concentrate plan are always displayed at day-change until the animal is cancelled.

Turn the program switch to 3 = alarms.

```
messages:^ dr.: 0 →
C: 2      exp.: 2
```

Select submenu „Expiry Plan/Animal“.

```
exp.plan/animal^  →
number: 2
```

Move to the next screen.

```
23A^  feeding     →
expiry date reached
```

Press „0/C“ to delete expire date messages.

Go to the next screen.

Expire date messages relating to the feeding plan are displayed every day until the animal is cancelled.

The following expire date messages may appear:

End of the feeding plan: After the duration of the feeding plan has lapsed, the animals will not get milk anymore. The expire date messages can be deleted for one day only. They reappear the next day until the animal is cancelled.

```
23A^ feeding
expiry date reached
```

End of the concentration plan: After the duration of the concentration plan has lapsed, the animals will be fed according to the last concentration value.

```
23A^ concentration
expiry date reached
```

End of the concentrate plan: After the duration of the concentrate plan has lapsed, the animals will get the concentrate amount according to the last set value. After deletion, the expire date message will be displayed again the next day until the animal is cancelled.

```
23A^ C1
expiry date reached
```

End of the medicine prescription plan: After the duration of the medicine prescription plan has lapsed, the animals will not get additive anymore.

```
11A^ X1
expiry date reached
```

End of the electrolyte plan: After the duration of the electrolyte plan has lapsed, the animals will not get electrolyte drinking anymore.

```
11A^ EL
expiry date reached
```

End of addition/reduction:

The animal is fed according to the feeding plan.

```
12C^ feeding
+/- deviation exp.
```

The animal is fed according to the concentration plan.

```
12C^ concentration
+/- deviation exp.
```

The animal is fed according to the concentrate plan.

```
14A^ C1
+/- deviation exp.
```

```
17B^ C2
+/- deviation exp.
```

The animal is fed according to the medicine prescription plan.

```
13A^ X1
+/- deviation exp.
```

The animal is fed according to the electrolyte plan.

```
13A^ EL
+/- deviation exp.
```

13.5 Animal Data and Info

In switch menu „Animal Data & Info“ you can enter the Responder number and register, cancel and relocate the animals. In addition, you can enter and check the most important animal data, like e.g. weight gain, housing date as well as the days until the end of the feeding plan.

The switch menu „Animal Data & Info“ contains the following submenus:
- Weight, Days Fed
- Ration/Day/Animal
- Cancel Registration
- Register
- Register Groups
- Automatic Registration
- Change Registration
- Transmitter Input

13.5.1 Weight, Days Fed

This menu contains all data concerning weight and daily weight gain, as well as information on feeding days, housing date, correction days and days until the end of the plan.

Turn the program switch to 6 = animal data and Info.

Select submenu „Weight, Days Fed“.

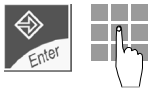
```
animal data &Info →
weight, days fed  ^
```

Go to the next screen. Here you can check and, if necessary, alter the animal weight and the current daily weight gain.

```
12A^ weight 50 kg →
LWG  500 g/day
```

If no reliable animal weight has been ascertained, the display will show:

```
12A^weight 50 kg? →
LWG  500 g/day
```



Press ENTER and, if required, alter the animal weight and the daily weight gain.

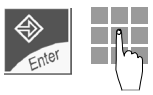
Press ENTER to confirm the input.

Go to the next screen. The display shows the feeding days (days since housing) and the housing date. You can only enter or alter the animal number.

```
12A^ days fed 12  →
reg. date 11.07.03
```

Go to the next screen. The correction days allow you to shift each animal to any point of the corresponding curve.

```
12A^corr. +0 days →
expires in 43 days
```



Press ENTER. Enter the desired correction days.

Press ENTER to confirm the input.

Positive numbers: Enter positive numbers to „make the animals older“ and shift them to the right of the feeding curve.

Negative numbers: Enter negative numbers to „make the animals younger“ and shift them to the left of the feeding curve. You cannot set an animal at a point preceding the start of the curve, i.e. if the negative number exceeds the number of feeding days, the input will not be accepted.

End of the feeding plan: The days until the end of the feeding plan are always updated. Therefore, the setting changes after the correction days have been keyed in. After the end of the plan has been attained, the milk is no longer dispensed, unless an animal is fed with an additive. The milk is dispensed according to the duration of the prescription. Weaned animals have to be „made younger“ and do **not** have to be registered again!

Go to the next screen.

```
12A^ C1 - plan    →
expires in 55 days
```

Go to the next screen.

```
12A^ C2 - plan    →
expires in 62 days
```

The display shows information on the remaining feeding days until the end of the plan for concentrate type 1 and 2. After the end of the plan has been attained, the concentrate is fed according to the last set value.

13.5.2 Ration/Day/Animal

In this menu you can view the composition of drinking and concentrate per animal and current day.

Select submenu „Ration/Day/Animal“.

```
animal data & Info→
ration/day/animal^
```

Go to the next screen. The display shows information on the day quantity of the milk and the concentrate amount (C1 and C2 together).

```
12B^ feed. 6.0 L →
     C     0.20 kg
```

Move to the next screen. The display shows information on the day quantity and the milk concentration.

```
12B^ feed. 6.0 L →
concentr.  120 g/L
```

Go to the next screen. Here you can view the milk powder quantity per day and the actual milk ratio as a percentage. The absolute milk quantity is calculated per animal and day in litres depending on concentration, milk ratio of the group and milk value (input in „Milk Functions“).

```
12B^ MP   124 g   →
75 % milk 4.5 L
```

Move to the next screen. If a powder additive is fed, the display will show the day quantity for the selected animal and the already consumed quantity.

```
12B^ X1    20 g   →
consumed   10 g
```

Go to the next screen. If an electrolyte solution is fed, the following message will be displayed.

```
12B^ EL    12 g   →
consumed    6 g
```

Move to the next screen.

```
12B^  C1 0.23 kg  →
        (0.19)kg
```

Move to the next screen.

```
12B^  C2 0.48 kg  →
        (0.35)kg
```

The first line shows the day quantity of concentrate type 1 or 2 with potential carryover. In the second line you will find in brackets the value taken from the plans for concentrate 1 or 2.

13.5.3 Cancel Registration

You have to cancel the animals each time they are removed from the house. The little „a“ displayed next to the animal number means that this number is available again.

In this menu you can cancel individual or all animals (before and after the end of the feeding plan).

Before removing the animals from the house, write down the management data, such as e.g. feeding days and total consumption. Remove all cancelled animals from the feeding station.

If automatic registration is active, remove the animals from the house before they are cancelled, otherwise it may happen that they are registered again.

Select submenu „Cancel Registration“.

```
animal data &Info →
cancel registrat. ^
```

Go to the next screen. In the second line are displayed the remaining days until the end of the feeding plan for the corresponding animal.

```
14A^cancel ? no   →
expires in 59 days
```

Select the number of the animal that has to be cancelled.

Select „yes“ and press ENTER to confirm the input. The following message appears:

```
14a^ is cancelled
```

Go to the next screen. Here you can cancel all animals that have reached the end of the feeding plan.

```
all expired animal→
cancel reg. ? no
```

Select „yes“ and press ENTER to confirm the input. The display shows the number of cancelled and available animals.

```
animals cancelled:3
numbers available12
```

Move to the next screen. Here you can cancel all animals.

```
all animals       →
cancel reg. ? no
```

Select „yes“ and press ENTER to confirm the input. The display shows the number of cancelled and available animals.

```
animals cancelled:26
numbers available:35
```

13.5.4 Change Registration

In menu „Change Registration“ each animal can be allocated to another group.

Select submenu „Change Registration“.

```
animal data &Info →
change registrat. ^
```

Go to the next screen. The second line shows the remaining days until the end of the plan.

```
10B^change into A^→
expires in 42 days
```

Select the animal number.

Press ENTER to confirm the input.

Select the desired group.

Press ENTER.

13.6 Consumption

In switch menu „Consumption“ the total requirement for each feed component (milk, MP, additives and concentrate) is calculated per day and appliance.

Turn the program switch to 8 = consumption. The first screen shows the calculated milk requirement for all animals in litres as well as the quantity in litres already consumed today.

```
milk req.    47.1L →
consumed     10.0L
```

Go to the next screen. The display shows the calculated milk powder requirement for all animals in kilograms as well as the already consumed quantity (in kg).

```
MP req.     5.8 kg →
consumed    0.0 kg
```

The following screen is displayed only if powder or liquid additives are dispensed.

Go to the next screen. In the first line the display shows the day requirement for additive of the currently active prescription calculated according to animal’s weight. In the second line the display shows the already consumed quantity (in g).

```
X1 today:      27g →
consumed        5g
```

If an electrolyte prescription is active, the display will show the already consumed quantity.

```
EL:            15g →
consumed        5g
```

Move to the next screen. The display shows the calculated requirement of concentrate 1 for all animals in kilograms as well as the already consumed quantity (in kg).

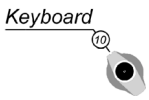
```
C1     req 12.5kg →
consumed   3.6kg
```

Go to the next screen. The display shows the calculated requirement of concentrate 2 for all animals in kilograms as well as the already consumed quantity (in kg).

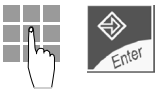
```
C2      req 19.1kg
consumed    5.2kg
```

13.7 Total Consumption

In menu „Consumption Totals“ you can view the total quantities of milk, milk powder, concentrate and additives consumed up to now by each individual animal.



Turn the program switch to 10 = keyboard.



Enter 22. Press ENTER to confirm the input.

```
1A^ milk 20.5 L  →
    MP    9.8 kg
```

Select the animal. The display shows the total consumption of milk and milk powder of the corresponding animal.

```
2A^ milk 18.5 L  →
    MP    7.6 kg
```

The next screen shows the total consumption of the additives X1 + X2.

```
2A^ X1   25 g    →
    X2    0 g
```

Press Arrow Right to move to the next screen. The display shows the total consumption of the additives X3 + X4.

```
2A^ X3   25 g    →
    X4    0 g
```

Press Arrow Right to move to the next screen. The display shows the total electrolyte consumption.

```
2A^ EL   15 kg   →
```

Go to the next screen. Here you can view the total consumption of concentrate type 1 + 2.

```
2A^ C1   12.5 kg →
    C2   21.2 kg
```

14 Cleaning

The automatic feeder has to be cleaned regularly, particularly if fresh milk is fed. You can choose between the following options:

- HE with sponge (HE = Heat Exchanger)
- Heat exchanger
- HE with hoses
- Mixer
- Compressed air-cleaning
- Cleaning settings for: heat exchanger, mixer, suction hoses, remaining portions, detergent and compressed air-cleaning.

Select the type and frequency of the cleaning process in accordance with the composition and the germ-content of the milk that has to be fed.

You can activate the keys 1 and 2 (feeding station 1 + 2), the mixer outlet valve (key 5) as well as the feeding pump even in program switch position 2 = rinsing, but only if no cleaning process is running. The water in the mixer jar is then drained off by means of the feeding pump either via the suction line or the mixer outlet valve.

If the automatic feeder is equipped with a detergent dosing pump, you have to select it in „Setup“. In this case, the detergent is added automatically to all cleaning processes (except for „HE with sponge“).

14.1 HE with Sponge

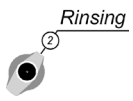
Clean the heat exchanger regularly in order to remove potential milk deposits inside the stainless steel coil, . The cleaning sponge is used as a mechanical cleaning aid.

Insert the cleaning sponge into the milk-supplying pipe via the easily accessible quick-coupling. The cleaning sponge is then pressed through the heat exchanger by the water. After the cleaning process has been completed, remove the cleaning sponge from the mixer jar.

In case the cleaning sponge pushes forward dirt or deposits, repeat the cleaning process at regular intervals.

If you soak the sponge with a cleansing agent, you have to rinse by means of clear water.

Proceed as follows:



Turn the program switch to 2 = rinsing. The display shows:

```
cleaning
HE with sponge^
```

Move to the next screen.

```
HE with sponge
cleaning?     start
```

- Open the quick-coupling for sponge cleaning.
- If necessary, soak the sponge with a cleansing agent and insert it into the opening.
- Close the quick-coupling.

Press Start/Stop, in order to start the cleaning process.

During the cleaning process approx. 750 ml of water are delivered into the stainless steel coil located inside the heat exchanger.

After cleaning has been completed, the display shows:

```
HE with sponge
cleaning finished
```

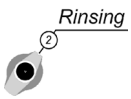
- Press the manual key „Mixer outlet valve“ to remove the water from the mixer jar or to let it draw off via the mixer outlet valve. Air in the hoses prevents the water from draining off. In this case, keep the push-button at the upper left of the chassis pressed to activate the feeding pump.
- In order to rinse again by means of clear water, press the manual keys „Water solenoid valve“ and „Milk pump“ simultaneously or reactivate the function „HE with sponge, Cleaning“ in program switch position „Rinsing“ (without inserting the sponge).

14.2 Heat Exchanger

The heat exchanger cleaning consisting of pre-cleaning, main cleaning and rinsing has to be carried out daily. During heat exchanger cleaning, all milk-supplying parts of the automatic feeder (except for the suction hoses) are thoroughly cleaned to prevent creation of milk deposits or other impurities.

The heat exchanger can also be cleaned automatically (see Menu „Cleaning, Settings“). If automatic heat exchanger cleaning is active, automatic mixer cleaning becomes no longer necessary, as the mixer jar is cleaned too.

You will find a detailed description of the individual functional steps in chapter „Function Steps: Cleaning the Heat Exchanger“ (annex of this instruction manual).



Turn the program switch to 2 = rinsing.

```
cleaning          →
HE with sponge^
```

Press Arrow Up or Arrow Down to select submenu „Cleaning, Heat Exchanger“.

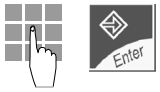
```
cleaning          →
heat exchanger^
```

Press Arrow Right to move to the next screen.

```
heat exchanger    →
cleaning ?    start
```

Press Start/Stop. If the automatic feeder is equipped with a detergent dosing pump that has previously been selected in Setup, the display will show:

```
clean HE
detergent 0 g/L
```



Enter the detergent amount and press ENTER to confirm the input *(see annex)*.

```
clean HE
detergent 10 g/L
```

The pre-cleaning process starts running *(see annex)*.

During pre-cleaning the display shows:

```
  pre-rinse HE
```

After pre-cleaning, the main cleaning process is activated *(see annex)*. If you select the detergent dosing pump in Setup, detergent will automatically be added to the water. The water starts circulating.

```
  clean HE
```

Time starts running backwards from 10 to 0 minutes. You can cut off the cleaning process at any time by pressing Start/ Stop.

```
  clean HE
rem.:10:00min stop?
```

After 10 minutes have lapsed, the liquid in the mixer jar is drained off via the mixer outlet valve. The display shows:

```
  clean HE
emptying mixer
```

After completion of the main cleaning process, rinsing starts running *(see annex)*.

During the rinsing process the display shows:

```
  afterrinse HE
```

After completion of rinsing, the following message is displayed:

```
  afterrinse HE
     finished
```

After heat exchanger cleaning has been completed, the stainless steel coil is filled with water. If an entitled animal enters the feeding station and is identified, the water portion in the heat exchanger will be delivered into the mixer jar and then drained off via the mixer outlet valve. Only then, the automatic feeder starts preparing a milk portion.

Turn the program switch to position „Feeding Mode“ in order to return to feeding mode.

Notes on automatic heat exchanger cleaning (time-controlled)

If the long electrode is covered, the automatic heat exchanger cleaning will be deferred for 1 hour at most so that an animal has the opportunity to drink up the liquid in the mixer jar. If the animal does not drink up the liquid within this time (the electrode is still covered), the liquid will be drained off via the mixer outlet valve and the cleaning cycle starts running.

If there is still milk in the stainless steel coil, the automatic heat exchanger cleaning will be deferred for 1 hour at most, too. If an entitled animal enters the feeding station within this time, the automatic feeder will start preparing at least two portions of water + milk powder.

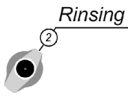
After the animal has drunk up the liquid in the mixer jar, the valve control closes the corresponding suction pipe and the heat exchanger cleaning starts running. If no entitled animal is identified within 1 hour, the milk will be pressed out of the stainless steel coil by some water and then drained off via the mixer outlet valve.

If you select „If Milk Empty Change to MP, no“ in menu „Milk Functions“, the milk in the stainless steel coil will not be fed to the animals. It will be pumped out via the mixer outlet valve before the cleaning process starts running.

14.3 Heat Exchanger with Suction Hoses

If the automatic feeder is equipped with a detergent dosing pump that has been previously selected in Setup, the heat exchanger and the suction hoses including the milk hose leading from the milk tank to the automatic feeder may be cleaned with detergent.

You will find more detailed information on the individual functional steps in chapter „Functional Steps: Cleaning the Heat Exchanger with Suction Hoses“ in the annex of this instruction manual.



Turn the program switch to 2 = rinsing.

```
cleaning          →
HE with sponge^
```

Select submenu „HE with Hoses“.

```
cleaning          →
HE with hoses^
```

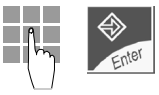
Press Arrow Right to move to next screen.

```
HE with hoses
cleaning ?    start
```

Press Start/Stop. In case you did not activate the detergent dosing pump in Setup, the cleaning process starts running immediately without detergent. If required, add some detergent manually.

If you have activated the detergent dosing pump in Setup, after pressing Start/Stop the display will show the following message:

```
clean HE
detergent  0g/L
```



Enter the detergent amount and press ENTER to confirm the input. The display shows:

```
hoses
ready ?        yes
```

In order to prepare the suction hoses for the cleaning process, proceed as follows:

- Remove the suction hoses from the teat.
- Remove the milk hose from the automatic feeder.
- If the milk hose has to be cleaned too, remove it from the milk tank. Before, close the stopcock at the milk tank.
- Put the suction hoses on the cleaning adaptor but do not connect them yet.

- If the milk hose has to be rinsed too, connect it to the quick coupling of the cleaning adaptor.

As soon as the suction hoses are ready for cleaning, press ENTER to confirm „yes“ in order to activate the cleaning cycle *(see annex)*.

```
hoses
ready ?        yes
```

Pre-cleaning starts running. In support of the cleaning process, push the button at the upper left of the chassis to activate the feeding pump.

The display shows:

```
press feeding pump
prerinse ?   stop
```

The next water portion is dispensed as soon as the long electrode is free.

After all milk rests have been removed from the system and clear water comes out of the hoses, press Start/Stop to complete pre-cleaning. The display shows:

```
hoses
connected ?     yes
```

Now connect the cleaning adaptor or the milk hose connected to it to the milk supply. Press ENTER to confirm „yes“.

The following message is displayed:

```
to deaerate
press feeding pump
```

In support of the deaeration process, push the button at the upper left of the chassis to activate the feeding pump.

As soon as the system is deaerated, the main cleaning process (lasting 10 minutes) starts running automatically. If the detergent dosing pump is available and you activated it in Setup, the detergent will be automatically added to the water.

Time starts running backwards from 10 to 0 minutes. You can cut off the cleaning process at any time by pressing Start/Stop.

```
clean HE
rem.:09:55min stop?
```

After the main cleaning process has been completed you have to remove the suction hoses from the milk supply of the automatic feeder in order to start the rinsing process.

```
hoses
uncoupled       yes
```

After you have removed the hoses, press ENTER to confirm „yes“.

The following message appears:

```
press feeding pump
afterrinse     stop
```

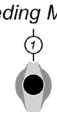
In support of the rinsing process, push the button at the upper left of the chassis to activate the feeding pump. The rinsing water is then drained via the mixer jar and the connected hoses. As soon as the long electrode (level electrode) is free, the next water portion will be dispensed from the stainless steel coil.

After all detergent rests have been removed, press Start/Stop to complete the rinsing process. The display shows:

```
emptying mixer
```

The rinsing process is completed as soon as the mixer jar is empty. The display jumps back to the initial menu „HE with Hoses, Clean? Start“.

Feeding Mode



Turn the program switch to „Feeding Mode“ again.

Turn the program switch back to position „Feeding Mode“ only if no detergent has been utilized or after you have verified that the system does not contain any water with detergent anymore.

14.4 Mixer

You may abandon mixer cleaning, as the mixer jar is rinsed during automatic heat exchanger cleaning, too.

14.4.1 Automatic Mixer Cleaning (Time-Controlled)

The mixer can be cleaned automatically up to nine times/day with detergent - on the condition that the automatic feeder is equipped with a detergent dosing pump that has been previously activated in Setup (see Menu „Cleaning, Settings“). If automatic heat exchanger cleaning is active, 3 hours before and 3 hours after heat exchanger cleaning, the mixer will not be cleaned regardless of the entered number of cleaning processes.

Make sure that there is a water discharge next to the automatic feeder. If not, put the outlet hose of the mixer into a bucket.

Empty the bucket regularly. Make sure that the outlet hose of the mixer does not hang in the rinsing water.

Functioning:

If the long electrode is free, a water portion will be delivered into the mixer jar (for pre-cleaning) where it is quickly mixed up and then pumped out via the mixer outlet valve. After that, two further portions will be dispensed. If the automatic feeder is equipped with a detergent dosing pump that has been previously activated in Setup, some detergent will be added to the water.

```
cleaning mixer
3:00 min
```

After the mixer has run for 3 minutes (the time runs backwards from 3 to 0 minutes), the liquid in the mixer jar will be drained off via the mixer outlet valve. The display shows:

```
emptying mixer
```

After a short time two water portions are delivered again into the mixer jar. After that, the rinsing process takes place in shortened form. The display shows:

```
post-clean mixer
```

If the water cannot be drained off via the mixer outlet valve within 2 minutes (the long electrode is still covered), an alarm message will be displayed (see chapter „Alarms, Machine

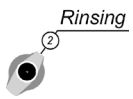
Alarms“). You can view and delete the alarm message in menu „Alarms“ (program switch position 3). If necessary, check whether the suction hose or the mixer outlet valve are blokked. Remove the rinsing water from the mixer jar.

If the detergent has been added automatically to the rinsing water, the feeding mode will be interrupted until the problem has been solved.
If no detergent has been added automatically to the rinsing water, the fault message displayed on the screen will disappear as soon as an entitled animal enters the feeding station. The animal will then get the liquid in the mixer jar. The bleep accompanying an alarm message stops sounding as soon as you clear the alarm message in menu „Alarms“ (program switch position 3).

If the long electrode is covered, automatic mixer cleaning will be deferred for 1 hour at most so that an animal has the opportunity to drink up the liquid in the mixer jar. If the animal does not drink up the liquid within this time (the electrode is still covered), the liquid will be drained off via the mixer outlet valve and the cleaning cycle starts running.

14.4.2 Calling Up Automatic Mixer Cleaning Manually

You can activate automatic mixer cleaning manually at any time in menu „Cleaning“.



Turn the program switch to 2 = rinsing.

```
cleaning          →
HE with sponge^
```

Press Arrow Up or Arrow Down to select submenu „Mixer“.

```
cleaning          →
mixer^
```

Press Arrow Right to move to the next screen.

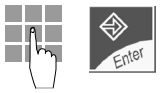
```
mixer
cleaning ?    start
```

Press Start/Stop.

If you do not activate the detergent dosing pump in Setup, during the automatic cleaning cycle the detergent will not be added automatically to the water. If necessary, manually add some detergent to the water.

If you have activated the detergent dosing pump in Setup, press Start/Stop to move to the next screen.

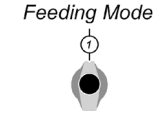
```
cleaning mixer
detergent  0 g/L
```



Change or maintain the pre-set detergent amount and press ENTER to confirm the input. Automatic cleaning starts running.

If the level electrode is covered, the remaining portion in the mixer jar will be pumped out via the mixer outlet valve before cleaning starts running.

If you turn the program switch to another position while the mixer is running, the third portion will be distributed only after you turn the program switch back to position „Rinsing“ or „Feeding Mode“.



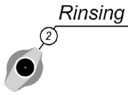
After the automatic cleaning has been completed, turn the program switch back to position 1 = Feeding Mode.

Turn the program switch back to position „Feeding Mode“ only if no detergent has been utilized or after you have verified that the system does not contain any water with detergent.

14.4.3 Compressed Air-Cleaning

Compressed air facilitates suction hose cleaning up to the top of the teat without detergent. In order to ensure accurate cleaning, make sure that air pressure is between 2 and 3 bar.
Please note: Air pressure over 3 bar may damage the diaphragm inside the milk solenoid valves.

In this menu you can activate compressed air cleaning manually at any time, provided that the automatic feeder is equipped with a device for compressed air cleaning that has been previously registered in Setup.
Proceed as follows:



Turn the program switch to position 2 = cleaning. The display shows:

```
cleaning          →
HE with sponge^
```

Press Arrow Up or Arrow Down to select submenu „Air cleaning“.

```
cleaning          →
air cleaning^
```

Press Arrow Right to go to the next screen. Enter the number of the feeding station where compressed air cleaning should take place. Press Start.

```
air cleaning
box:1^      start
```

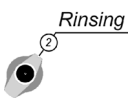
14.5 Cleaning Settings

Menu „Cleaning, Settings“ contains all settings needed to carry out automatic heat exchanger-, mixer-, suction hose- and compressed-air cleaning. In addition, the remaining portions in the mixer jar can be drained off after a pre-set time.

14.5.1 Cleaning Settings Heat Exchanger

In Menu „Cleaning Settings, Heat Exchanger“ you can enter the frequency of automatic heat exchanger cleaning. You can choose between 1 time or 2 times per day at selectable times.

This menu is displayed only if the automatic feeder is equipped with a fully automatic heat exchanger cleaning that you have previously activated in submenu „Heat Exchanger with Automatic Cleaning, Yes“.



Turn the program switch to 2 = rinsing.

```
cleaning          →
HE with sponge^
```

Press Arrow Up or Arrow Down to select submenu „Settings“.

```
cleaning          →
settings^
```

Press Arrow Right to move to the next screen.

```
cleaning settings →
heat exchanger^
```

Press Arrow Right to go to the next screen.

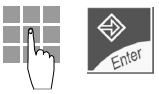
```
clean HE          →
automatically   yes
```

Enter „no“ if the heat exchanger must not be cleaned automatically. Press ENTER to confirm the input.

```
clean HE          →
automatically   no
```

If you select „yes“, press Arrow Right to move to the next screen. Press ENTER.

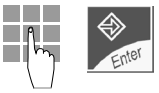
```
clean HE          →
2 times / day
```



Enter the frequency of heat exchanger cleaning. Press ENTER to confirm the input.

Press Arrow Right to move to the next screen. Press ENTER.

```
clean HE at
10:00 and 22:00 h
```



Enter the time when heat exchanger cleaning has to be carried out, e.g. at 2:00 a.m. and 2:00 p.m. (14:00). Press ENTER to confirm the input.

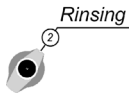
```
clean HE at
2:00 and 14:00 h
```

If you enter two cleaning times, make sure that the lag between the first and the second cleaning process (at the lower right of the screen) is at least 1 hour. Otherwise, the automatic feeder will carry out only **one** cleaning process.

The cleaning process takes place as soon as the milk in the stainless steel coil of the heat exchanger has been fed to the animals. When cleaning time has come and there is still milk in the coil, the automatic feeder tries to feed the milk for one hour. As the coil is filled with the water needed for cleaning, it may happen that the first two drinking portions for an animal being entitled e.g. to 2 liters of milk consist of milk and the following of milk powder + water. If the animal does not drink the milk, the automatic feeder carries out automatic cleaning 1 hour after the entered time, at the latest. The milk is then pressed out of the coil into the mixer jar by the incoming water and subsequently pumped out via the mixer outlet valve.

14.5.2 Cleaning Settings Mixer

In Menu „Cleaning Settings, Mixer“ you can enter the frequency of automatic mixer cleaning per day. You can enter up to 9 times per day. We recommend to clean the mixer 3 times per day, i.e. every 8 hours. If the automatic heat exchanger cleaning is active, 3 hours before and 3 hours after heat exchanger cleaning, the mixer will not be cleaned regardless of the number of entered cleaning processes. After the cleaning process has been completed, the liquid in the mixer jar is drained off automatically via the suction hoses resp. the teat.



Turn the program switch to 2 = rinsing.

```
cleaning          →
HE with sponge^
```

Press Arrow Up or Arrow Down to select submenu „Settings“.

```
cleaning          →
settings^
```

Press Arrow Right to move to the next screen.

```
cleaning settings →
heat exchanger^
```

Press Arrow Up or Arrow Down to select submenu „Mixer“.

```
cleaning settings →
mixer^
```

Press Arrow Right to go to the next screen.

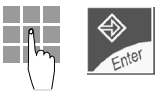
```
cleaning mixer    →
automatically   yes
```

Enter „no“ if the mixer must not be cleaned automatically. Press ENTER to confirm the input.

```
cleaning mixer    →
automatically   no
```

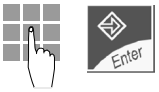
If you select „yes“, press Arrow Right to move to the next screen. Press ENTER.

```
cleaning mixer
1 time / day
```



Enter the frequency of cleaning processes. Press ENTER to confirm the input.

```
cleaning mixer
3 times / day
```

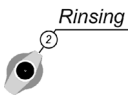


Move to the next screen. If more water is needed for mixer cleaning, here you can enter the corresponding quantity.

```
mixer             →
cl. water:    0 ml
```

14.5.3 Cleaning Settings Suction Hose

In menu „Cleaning Settings, Suction Hose“ you can activate suction hose cleaning for those animals of a certain group and as of a certain age (weeks after housing). After an animal has drunk the last available portion, a 0.25 liter water portion is delivered into the mixer jar after draining time has lapsed. Usually an animal stays a little bit longer in the feeding station suckling at the teat and facilitating in this way suction hose cleaning.



Turn the program switch to 2 = rinsing.

```
cleaning          →
HE with sponge^
```

Press Arrow Up or Arrow Down to select submenu „Settings“.

```
cleaning          →
settings^
```

Press Arrow Right to move to the next screen.

```
cleaning settings →
heat exchanger^
```

Press Arrow Up or Arrow Down to select submenu „Suction Hose“.

```
cleaning settings →
suction hose^
```

Press Arrow Right to go to the next screen.

```
clean hose pipe   →
group A^        yes
```

Press Arrow Up or Arrow Down to select the group for which the suction hose should be cleaned.

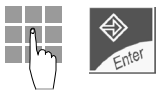
```
clean hose pipe  →
group B^       yes
```

Enter „no“ if for group B the suction hose should not be cleaned automatically (standard setting: „yes“). Press ENTER to confirm the input.

```
clean hose pipe  →
group B^       yes
```

If you select „yes“, press Arrow Right to move to the next screen. Press ENTER to confirm the input.

```
group B^ fr.14th day
of the feeding plan
```



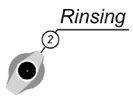
Enter as of which day of the feeding plan the suction hose has to be cleaned. Press ENTER to confirm the input.

```
group B^ fr.14th day
of the feeding plan
```

Potential input: 1 to 99 days. Standard value: as of 14th day of the feeding plan (= 2 weeks)

14.5.4 Cleaning Settings Remaining Portion

If an animal does not consume the available milk amount, there is some liquid left in the mixer jar. This remaining portion can be drained off automatically via the outlet valve after the pre-selected time has lapsed, particularly if individual animals get some medicine or if only a few animals have been housed. As soon as the mixer is empty, a 0.25 liter water portion is delivered into the mixer jar and subsequently drained off via the mixer outlet valve.



Turn the program switch to 2 = rinsing.

```
cleaning         →
HE with sponge^
```

Press Arrow Up or Arrow Down to select submenu „Settings“.

```
cleaning         →
settings^
```

Press Arrow Right to move to the next screen.

```
cleaning settings →
heat exchanger^
```

Press Arrow Up or Arrow Down to go to submenu „Remaining Portion“.

```
cleaning settings →
remaining portion^
```

Press Arrow Right to move to the next screen.

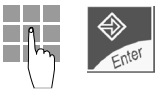
```
remaining portion →
empty ?        yes
```

Enter „no“ if the remaining portion has to be drained off automatically (standard setting: „yes“). Press ENTER to confirm the input.

```
remaining portion →
empty ?         no
```

If you select „yes“, press Arrow Right to move to the next screen. Press ENTER.

```
remain.portionafter
30 min empty
```



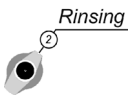
Enter after which time the remaining portion should be drained off. Press ENTER to confirm the input. Potential input: up to 99 minutes.

```
remain.portionafter
25 min empty
```

Potential input: 0 to 99 minutes. Standard value: 30 minutes.

14.5.5 Cleaning Settings Detergent

This menu is only displayed if the automatic feeder is equipped with a detergent dosing pump that has been previously selected in Setup.



Turn the program switch to 2 = rinsing.

```
cleaning          →
HE with sponge^
```

Press Arrow Up or Arrow Down to select submenu „Settings“.

```
cleaning          →
settings^
```

Press Arrow Right to move to the next screen.

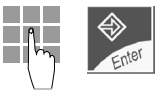
```
cleaning settings →
heat exchanger^
```

Press Arrow Up or Arrow Down to select submenu „Detergent“.

```
cleaning settings →
detergent^
```

Press Arrow Right to move to the next screen.

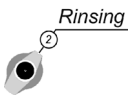
```
   detergent      →
     0 g/L
```



Enter the detergent amount and press ENTER to confirm the input. For dosage refer to the package insert.

```
   detergent      →
     15 g/L
```

14.5.6 Cleaning Settings Compressed Air-Cleaning



Turn the program switch to position 2 = cleaning. The display shows:
In the Powder-version „Mixer“ is displayed instead.

```
cleaning          →
HE with sponge^
```

Press Arrow Up or Arrow Down to select submenu „Settings“.

```
cleaning          →
settings^
```

Press Arrow Right to move to the next screen.

```
cleaning settings →
heat exchanger^
```

Press Arrow Up or Arrow Down to move to submenu „Air Cleaning“.

```
cleaning settings →
air cleaning^
```

Press Arrow Right to go to the next screen.

```
air cleaning      →
automatically    no
```

If compressed-air cleaning has to be carried out automatically, enter „yes“ and press ENTER to confirm the input.

```
air cleaning      →
automatically   yes
```

Press Arrow Right to move to the next screen. Select the feeding station where the compressed air has been installed.

```
air cleaning      →
box 1^
```

In the next menu you can select the cleaning intensity (weak, medium= Standard, strong). Press Yes/No and then ENTER to confirm the input. If the automatic feeder is equipped with a servo control, we recommend to select „strong“.

```
box:1 air cleaning →
     medium^yes
```

Press Arrow Right to move to the next screen. „No“ means that compressed-air cleaning will not cut off if an animal without feed entitlement is identified in the feeding station. „Yes“ means that compressed-air cleaning does not cut off until an animal without feed entitlement is identified in the feeding station. An entitled animal immediately gets the feed to which it is entitled. If an animal without feed entitlement is identified in the feeding station, compressed-air cleaning will restart 2 minutes after break-off. If an entitled animal leaves the feeding station where it has been identified, the following compressed-air cleaning will not start until the pre-set time in submenu „remaining portion empty after...minutes“ has lapsed. Press ENTER to confirm „Yes“ or „No“.

```
break air cleaning →
when calf visit no
```

Press Arrow Right to move to the next screen. By default, compressed-air cleaning starts as soon as the mixer jar is empty and waiting time has lapsed (30 minutes).

```
air cleaning after
feed in 30 min
```

Press Arrow Right to move to the next screen. Select the operating mode in accordance with the season.

```
operating mode:   →
summer^yes
```

For the **winter operating mode** we suggest to shorten the time until the remaining portion is pumped off (see chapter 14.5.4 „Cleaning settings, Remaining portion“, page 137) as well as the time until compressed-air cleaning starts running. Example: Pump off the remaining portion after 10 minutes/Compressed-air cleaning after 10 minutes.

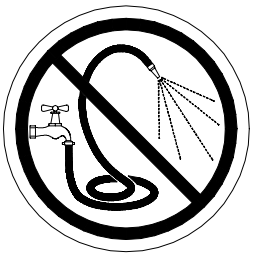
Press Arrow Right to move to the next screen. If you want to reduce the water amount needed for compressed-air cleaning, here you can enter the corresponding figure.

```
air cleaning      →
clean.water:  100%
```

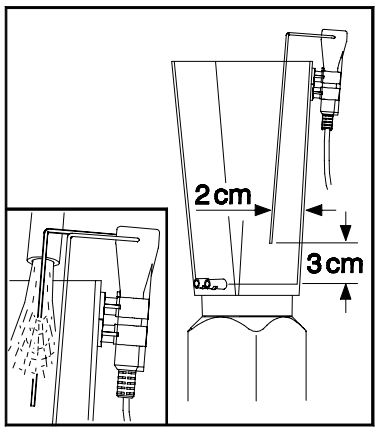
15 Service and Maintenance

15.1 Service and Maintenance of the Automatic Feeder

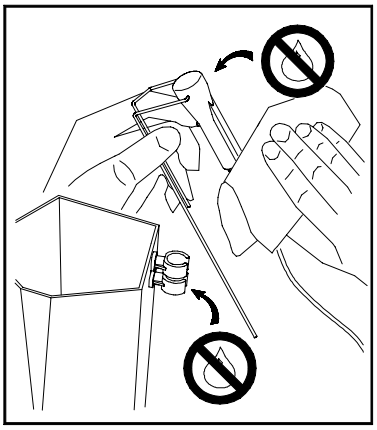
- Always keep the automatic feeder clean and dry. Never spray it with water!



- Take care that the electrode is in the correct position.



- Keep the electrode shaft and the clamps clean and dry. Moisture causes earthing of the electrode preventing preparation of the next milk portion.

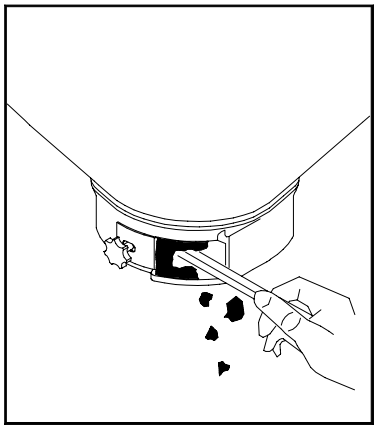


- If the automatic feeder operates in milk mode, be sure to clean it regularly by means of a cleaning sponge. Carry out automatic heat exchanger cleaning approx. once or twice per

week by adding a liquid cleansing agent utilized in dairy farming *(also refer to chapter 14.5.1, page 134, „Cleaning Settings, Heat Exchanger“).*

- Clean the milk storage tank thoroughly twice a day each time before filling it. Thoroughly clean the milk supply hose at regular intervals.
- Carry out daily check of the powder outlet and, if necessary, remove incrustations. Incrustations impair dosing precision.

Because of injury risks, always remove incrustations of the powder outlet by means of a small piece of wood or similar. Never use your fingers!



- Clean the mixer jar every 1 – 2 days.

15.1.1 The Day after the First Commissioning

In case the automatic feeder is equipped with a circulation pump, carry out the following functional check:

- Deaerate the circulation pump.
- Check whether the circulation pump is running or not.

The circulation pump switches off automatically 15 minutes after the last portion has been dispensed.

- General function check:
  - Check the calibration values.
  - Measure the milk temperature.
  - Check the control of the external components by means of the manual keys.
  - Make sure that the animals are reliably identified.
  - Check the operational data (feeding plans, concentration plans, maximum/visit, warning levels).
  - Check the input in Prescriptions. Check the activation of additive dispense.
  - Check the input of weight and daily weight gain.

15.1.2 Carrying Out a Regular Check Routine

- Measure the milk temperature by means of a precision thermometer.
- Check the calibration of milk powder at least after each new delivery.
- Check the calibration of the components:
  Deviations of the amount of milk and water:
  - in case of deviations with rising tendency (more than 500 ml are dispensed), carry out a new calibration.
  - in case of deviations with falling tendency (clearly less than 500 ml are dispensed) due to milk deposits in the heat exchanger, repeat the circulating cleaning process. If necessary, use another cleansing agent but do not overdose it!
    Carry out cleaning by means of a cleaning sponge or a hose-cleaning pistol. If the cleaning sponge gets stuck, connect a high-pressure cleaner. Use the high-pressure cleaner only with cold water and slowly raise pressure.
    If these measures do not show any improvement, check whether the milk pump is running. Insufficient pump pressure may reduce the liquid amount, too.

15.1.3 Shutdown

Before shutdown:

- Turn the thermostat for minimum operating temperature and the heating thermostat entirely counter clockwise.
- Turn the main switch „ON/OFF“ to position „O“ and pull the mains plug to switch the automatic feeder off.

After decommissioning:

- The automatic feeder has to be in a dry location.
- Keep the connections on the control unit closed by means of closing caps.
  If not, moisture may penetrate the control unit.
- Do not leave milk or rinsing water in the system.
  Rinsing residues may affect the metal parts after long storage. Therefore, thoroughly rinse by means of clear water after the last cleaning process and drain off the remaining water. For that, remove the front cover of the milk pump and wait until the fluid drains off entirely.
- Let the water flow out of the heat exchanger. For that, remove the water hose located between the solenoid water valve and the boiler of the heat exchanger and open the deaeration screw of the circulation pump – if available – in order to make the water run out.

In case of frost risk:

- Let the water flow out of the solenoid valves and the pressure reducer.

Commissioning the automatic feeder once again:

- When commissioning the feeder again, check whether there is enough water in the heat exchanger.
- Proceed as for first commissioning.
- Fill up the boiler of the heat exchanger with water.
  - You do not need to fill up the boiler regularly in case a few animals are fed with milk containing a water share. If the animals only get milk, fill up the boiler of the heat exchanger with water approx. every 3 months. Proceed as for start-up *(refer to chapter 6.2, page 31, „Installing the Automatic Feeder, Filling the Boiler of the Heat Exchanger with Water“)*.

15.2 Service and Maintenance of the Concentrate Feeder

Carry out daily:

- Check the feed level of the concentrate feeder. Fill up the concentrate feeder, if necessary.
- Check whether there is remaining feed in the feed bowl and remove it, if necessary.
- Keep the dosing flap clean and free from feed rests.
- Check whether the LED of the feed contact lights up when the feed bowl is empty.

Carry out regularly:

- Calibrate the concentrate regularly.
- Check the calibration of the concentrate at least each time the concentrate is delivered or crushed or rolled.

Shutdown:

- Empty the concentrate feeder and remove feed rests.
- Place the concentrate feeder in a dry and clean location.
- For commissioning, proceed as for start-up.

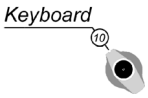
Never spray the electrical parts with water!

16 List Printing

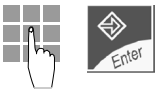
In keyboard menu 10 = print list you can activate printing of a warning list and a verification list at any time. The annex of this instruction manual contains more detailed information on how to connect the printer to the automatic feeder.

Warning list The Warning list contains all warning animals with the corresponding warning messages. Two lists are printed: the one for milk warnings and another for concentrate warnings.

Verification list The Verification list contains information about feed entitlement, milk consumption as well as drinking speed for all animals.



Turn the program switch to 10 = keyboard.



Enter 21 and press ENTER to confirm the input.

```
21# print list    →
warning list  no
```

Press Arrow Right to go to the screen of the desired list. Example:

```
21# print list    →
verific. list  no
```

Select „yes“ and press ENTER to confirm the input. The will be printed immediately.

17 Error Messages

The automatic feeder and the concentrate feeder are continuously monitored by the processor control. Errors caused are displayed on the screen.

17.1 Checking the Calibration Values of the Milk

If one or more calibration values are missing, the display will show:

```
calibration values
adjust !!!
```

- Carry out calibration again.

17.2 The Heat Exchanger Is Not Active

If you have not activated the heat exchanger type in Setup, the display will show:

```
heat exchanger
enter in setup !!
```

- Select the heat exchanger in Setup.

17.3 The Feeding Mode Cuts Off

If the feeding mode cuts off because the temperature has fallen below the minimum operating temperature, the display will show:

```

check temperature
```

- Check the position of the thermostats.
- Check the heating.

17.4 The Data Are Deleted

If the data are deleted, a bleep will be emitted. This message occurs very rarely and only after extremely intensive interference on the control. As soon as this message appears, carry out „New installation, All New“.

```
data destroyed
press key 0/c
```

Press „0/C“. The display shows „Data destroyed, New Installation, Yes“. *Refer to chapter 7.2, page 34, „Basic Inputs During Installation, New Installation“*.

```
data destroyed
new installationyes
```

Select „yes“ and press ENTER to confirm the input. The following message will be displayed:

```
instruction manual
read?       yes
```

Select „yes“ and press ENTER to confirm the input.

All data are deleted and the operational data are overwritten by standard values!

- For programming, proceed as for start-up.

17.5 The Supply Electrode is Earthed

If the short (supply) electrode is earthed before a portion is prepared, the display will show:

```
test sensor probe
please wait
```

If, after a short time, the display shows the message „Error, Supply Electrode“ the feeding mode will cut off:

```
      error
supply electrode
```

- Check whether the short electrode in the mixer jar is earthed.
- Check whether the electrode shaft is wet.
- Check the electrode cable.
- To continue feeding, first turn the program switch away from „Feeding Mode“ and then back to „Feeding Mode“.

17.6 Milk Shortage

If the short (supply) electrode is not hit by the milk jet, milk-dosing is cut off 1 second after the start. This process takes place repeatedly up to 5 times at short intervals, even if you turn the switch to another position.

If, after 5 repetitions, the supply electrode is not hit by the milk jet yet, the automatic feeder will either switch off or commute to the milk powder mode.

In feeding mode the display shows either:

```
   milk shortage
```

or:

```
milk empty! now MP
```

- After you filled up the milk storage tank, just turn the program switch away from „Feeding Mode“ and then back to „Feeding Mode“.

The display shows:

```
   milk tank
filled?         no
```

Enter „yes“ in case you filled up the milk tank. The automatic feeder starts running again in the milk mode.

17.7 Water Shortage

If the short electrode is not hit in water mode, the automatic feeder will start a water check. The repeat switching mechanism checks up to 5 times whether the water really does not come out. After 5 vain attempts, the preparation of milk portions as well as animal identification are switched off.

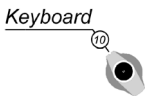
In feeding mode the display shows:

```
water shortage
```

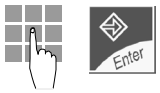
- Check whether the short electrode is hit by the water jet.
- Check the water supply to the automatic feeder.

Just turn the program switch away from „Feeding Mode“ and then back to “Feeding Mode“. The automatic feeder continues to operate in feeding mode.

17.8 Power Failures / Backups / Water and Milk Checks



Turn the program switch to 10 = keyboard.



Enter 23 and press ENTER to confirm the input. In this menu you can view the number of reboots of the automatic feeder (e.g. after power failure). The displayed date is the date of last deletion.

```
23# power failure →
since 17.07.03    2
```

Press „0/C“ to set the number of power failures to 0 and to update the date.

Go to the next screen. The display shows the number of power failures for the concentrate feeders 1 and 2.

```
23# silo 1&2      →
mains interr.: 0
```

Move to the next screen. The display shows the number of power failures for the concentrate feeders 3 and 4.

```
23# silo 3&4      →
mains interr.: 0
```

Go to the next screen. After a data error has been detected in memory, the computer can fall back on an internal backup. Each backup is counted.

```
23# restore
since 17.07.03
```

Press „0/C“ to set the backups to 0 and to update the date.

If backups occur regularly, search for the cause of the error!

Go to the next screen. The display shows the number of water checks that have been carried out since the indicated date. A

```
23#water check-up →
since 17.07.03    4
```

water check will be carried out if the short electrode has not at all or not long enough been hit by the water jet.

Press „0/C“ to set the number of water checks to 0 and to update the date.

Go to the next screen. The display shows the number of milk checks that have been carried out since the indicated date. A milk check will be carried out if the electrode has not at all or not long enough been hit by the milk jet.

```
23#milk check-up  →
since 01.07.03    2
```

Press „0/C“ to set the number of milk checks to 0 and to update the date.

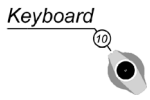
18 Animal Scales

For connection, see Connection Plan.

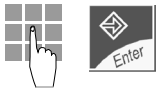
Make sure that animal scales 1 is connected to feeding station 1 and animal scales 2 to feeding station 2. On the motherboard, scales 1 corresponds to channel 4 and scales 2 to channel 5.

In keyboard menu „Animal Scales“ (program switch position 10), enter 25 to carry out the following:
- Test the connected animal scales. The display shows the animal weight that has just been ascertained.
- Tare the animal scales and carry out weighing.
- Check whether communication has been established to the connected animal scales.

18.1 Testing Connection, Taring Animal Scales,Carrying Out Weighing



Turn the program switch to 10 = keyboard.



Enter 25. Press ENTER to confirm the input. The automatic feeder briefly tests automatically whether communication to the animal scales has been established or not.

```
25# test   box:2
please wait..... →
```

The display shows:

```
25# test   box: 2^
connection  start →
```

Press Arrow Up or Arrow Down to select the box to which communication has to be tested.

Press Start/Stop to start the connection test.

If there is no connection to the animal scales, the display will show the following error message:

```
   anim.scales 1&2
connection error!
```

If the connection is o.k., the display will show the following message:

```
   anim.scales 1&2
connection   ok!
```

After 11 connection errors to the animal scales, an alarm will be triggered and the animal scales will be deactivated.

Press Arrow Right to move to the next screen.

```
25#HS1 at   box:2 →
tare          start
```

Press Start/Stop to tare the scales.

```
25#HS1 at   box:1
tare..............
```

After tare has been carried out the display shows:

```
25#HS1 at   box:2 →
tare finished
```

The scales will be tared automatically every 15 minutes if no animal is identified or less than 10 kg weight are on the scales.

Press Arrow Right to move to the next screen.

```
25#HS1 at   box:2 →
scales        start
```

Put a weight on the scales (50 kg e.g = two sacks of milk powder) and start the weighing process.

```
  HS1 at   box:2
weigh.............
```

The display indicates the ascertained weight of the two milk powder sacks. You cannot change this figure manually.

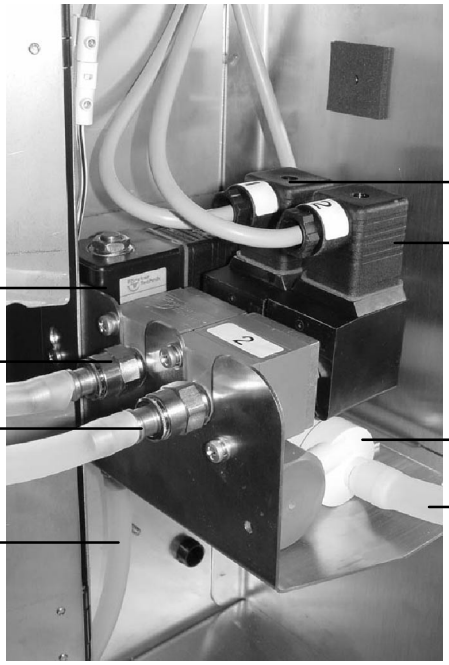
```
  HS1 at   box:2
W at HS = 55.5 kg
```

19 Accessories

19.1 Double Box

Thanks to the priority control with two-group-valve-unit, the automatic feeder can provide, in succession, two feeding stations with milk, i.e. as soon as an entitled animal enters the feeding station the available milk amount for this animal will be distributed without interruption while the other feeding station is blocked during this time. Change-over to the other feeding station takes place via the two-group-valve-unit located in the left interior of the automatic feeder.

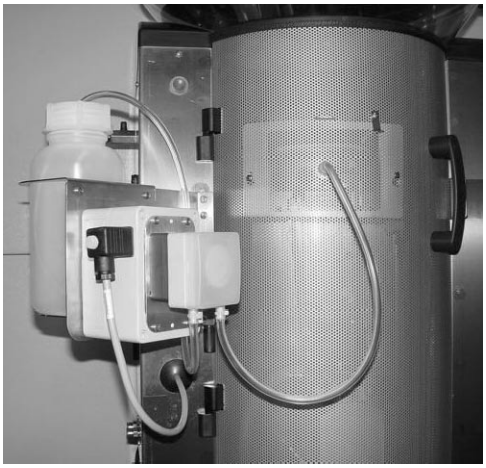
The milk hose leads from the mixer to the feeding pump and from there to the solenoid valves. If you open the lateral left door, you will find the connections from the box valves to the teat at the front side of the corresponding solenoid valves. The milk is conveyed to the corresponding feeding stations via the suction hoses. The hose connection from the mixer outlet valve to the teat is located below the outlet valve. The liquid in the mixer jar is conveyed to the outside via the suction hose that runs through an opening in the chassis of the automatic feeder.



Make sure that suction hose connection 1 leads to feeding station 1 (antenna 1) and suction hose connection 2 to feeding station 2 (antenna 2). If you do not observe this order, the animal that claims its milk portion at feeding station 1 will get no milk because the milk portion will be dispensed at feeding station 2 instead.

19.2 Additive Dispenser Powder and Additive Dispenser Liquid

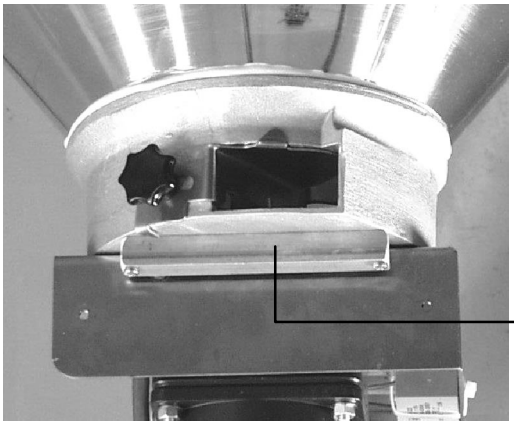
You can connect only **one** dosing device (Powder or Liquid) to Stand Alone II Plus.



Installation: For installation and start-up refer to the mounting instructions „Additive Dispenser Powder“ resp. „Additive Dispenser Liquid“.

19.3 Electrical Vapour Screen for MP- and Powder Additive Outlet

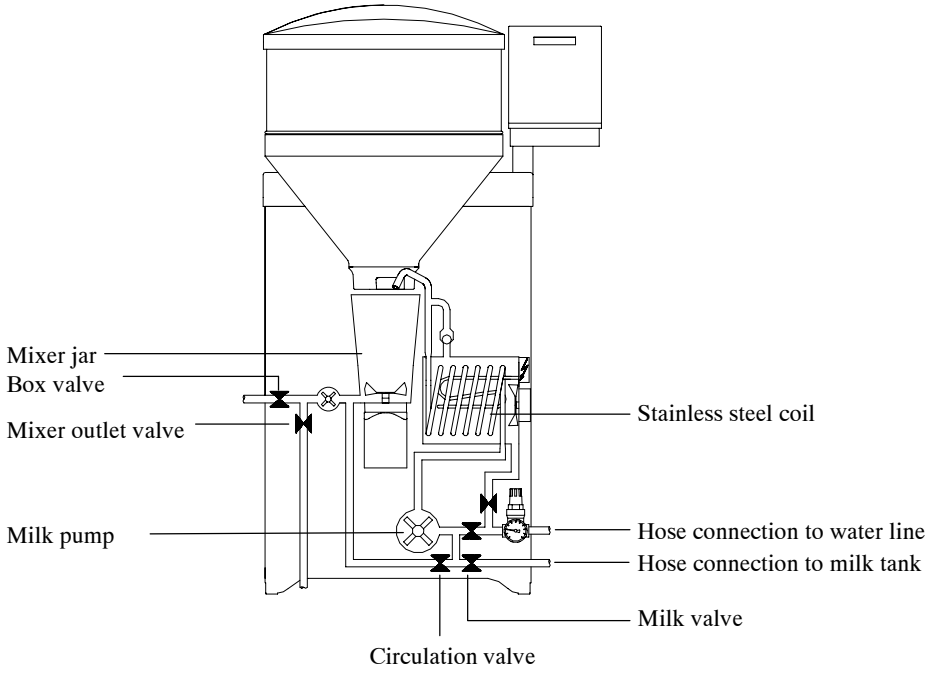
The electrical vapour screen consists of a heating element located right below the milk powder- resp. powder additive outlet. In case of bad weather conditions, such as e.g. too high atmospheric humidity, the electrical vapour screen should prevent the milk powder and the powder additive from sticking to the outlet.



19.4 Fully Automatic Heat Exchanger Cleaning

The fully automatic heat exchanger cleaning facilitates fully automatic, time-controlled cleaning with detergent (up to 2 times/day) of all milk-supplying parts of the automatic feeder except for the suction hoses. In this way, milk deposits or similar impurities are removed.

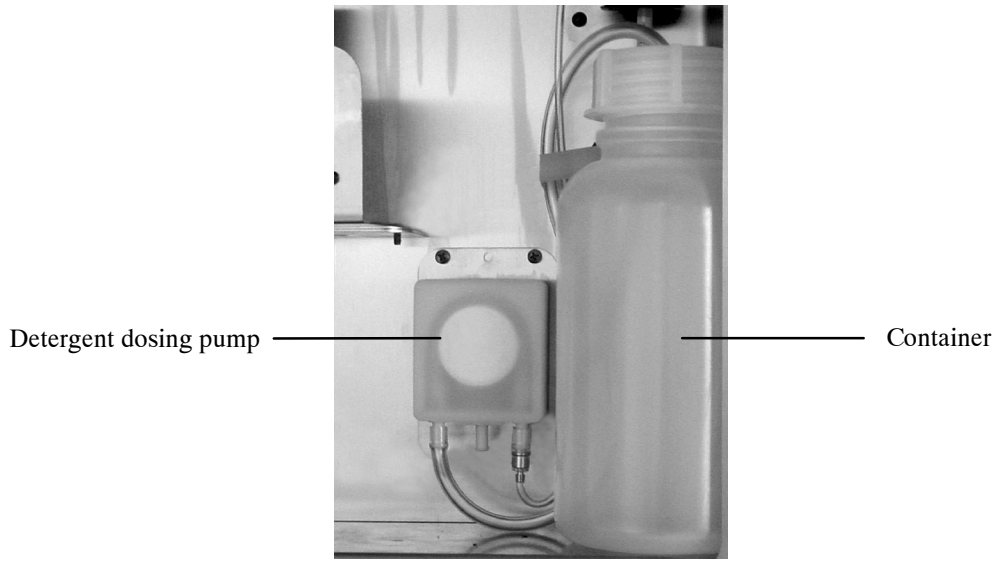
The fully automatic heat exchanger cleaning consists of a circulation valve for the internal cleaning cycle located behind the milk valve and of a detergent dosing pump. During the cleaning cycle the water runs through the stainless steel coil in the heat exchanger into the mixer jar where it is lead via the circulation valve through the milk pump back to the stainless steel coil. During this process the box valve and the mixer outlet valve are closed. Then, the mixer outlet valve opens and the excessive cleaning water in the mixer jar is pumped out to the outside. *See chapter 14.5.1, page 134 „Cleaning, Cleaning Settings Heat Exchanger“.*



19.5 Detergent Dosing Pump

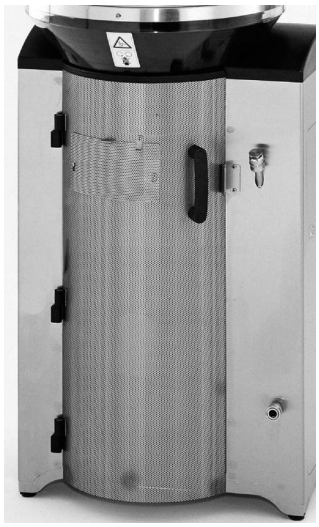
Thanks to the detergent dosing pump, liquid additives are added automatically to the water during the different cleaning cycles. There is no need anymore to add the detergent manually.

The detergent dosing pump is located in the left interior of the automatic feeder below the two-group-valve-unit. The detergent is taken from a container with a storage capacity of 1.5 liters and is conducted via a thin hose into the mixer jar. The detergent dosing pump has to be calibrated.



19.6 Fly Protection Door

In case of fly infestation occurring particularly in summer, we recommend to protect the mixer jar by a large fly protection door. Water vapour can easily escape through the openings of the fly protection door. The fly protection door can be mounted together with the dispenser for powder additives.



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EC DECLARATION OF CONFORMITY

We, **Förster Technik GmbH**
Gerwigstr. 25
D-78234 Engen
Tel.:+49-(0)7733-9406-0
Fax: +49-(0)7733-9406-99

declare that our products with the designation:

TAK*-SA2-27-F1	TAP*-SA2-27-F1	VDW*-SA2-27-F1
TAK*-SA2-28-P1	TAP*-SA2-28-P1	VDW*-SA2-28-P1
TAK*-SA2-30-P1	TAP*-SA2-30-P1	VDW*-SA2-30-P1
TAK*-SA2-32-P1		VDW*-SA2-32-P1
TAK*-SA2-38-P1		VDW*-SA2-38-P1

including all accessories, * with chassis size 5

to which this declaration relates are in conformity with the following relevant regulations:

EN	292-1 / 11.91	Basic concepts of general design of machines, part 1
EN	292-2 / 06.95	Basic concepts of general design of machines, part 2
EN	294 / 8.92	Safety clearance for upper limbs
EN	349 / 6.93	Minimum clearance for avoiding crushing upper limbs
EN	50081-1 / 3.93	Norm concerning electromagnetical emissions on residential areas, business districts and industrial areas
EN	50082-1 / 11.97	Norm of the resistance to jamming against line directed disturbances, induced by highfrequency fields above 9 kHz
EN	563 / 08.94, 01.95	Temperatures of touchable surfaces
prEN	1070 / 6.93	Safety of machines, terminology
EN	60204-1 / 11.98	Electrical components of machines

per the provisions of Council Directives 89/392/EEC, Annex II A, 89/336/EEC, 73/23/EEC and 93/68/EEC.

Date: 16. 09. 2003

Wolfgang Latz Alfred Steiner

Signatory: M. Latz, Head of Production Management
M. Steiner, Head of Production, Department Electrical Components

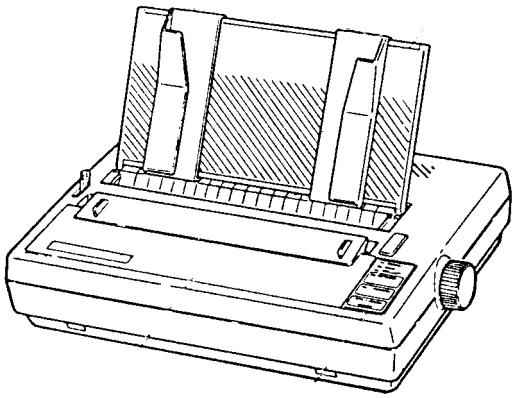
Connection between Printer and Stand Alone

Förster Technik

July 2003

Printer connected to Stand Alone

A printer can be connected to the automatic feeder „Stand Alone“. The alarm list, the verification list and/or the transmitter list can be printed either manually or automatically after midnight calculation.



The printer has to be equipped with a

serial interface port RS 232

with the following configuration:

1200 baud rate
8 data bit
1 stopbit
without parity
standard ASCII-character table
and standard IBM character table

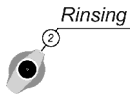
The configuration can be set by DIP-switches or by software. For further information consult the instruction manual for the printer.

Förster-Technik GmbH • Gerwigstr. 25 • 78234 Engen • Tel.: +49/7733/9406-0 • Fax: +49/7733/940699

Functional Steps „Cleaning, Heat Exchanger“ *(see chapter 14.2)*

Heat exchanger cleaning consists of pre-cleaning, main cleaning and rinsing and has to be carried out every day. During heat exchanger cleaning, all milk-supplying parts of the automatic feeder (except for the suction hoses) are thoroughly cleaned to prevent creation of milk deposits or other impurities.

The heat exchanger can also be cleaned automatically (see Menu „Cleaning, Settings“). If the automatic heat exchanger cleaning is active, automatic mixer cleaning becomes no longer necessary, as the mixer jar will be cleaned, too.



Turn the program switch to 2 = Rinsing.

```
cleaning          →
HE with sponge^
```

Press Arrow Up or Arrow DOwn to select submenu „Cleaning, Heat Exchanger“.

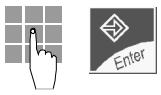
```
cleaning          →
heat exchanger^
```

Press Arrow Right to move to the next screen.

```
heat exchanger    →
cleaning ?    start
```

Press Start/Stop. If the automatic feeder is equipped with a detergent dosing pump that has been previously selected in Setup, the display will show:

```
clean HE
detergent 0 g/L
```



Enter the detergent amount and press ENTER to confirm the input.

```
clean HE
detergent 10 g/L
```

Pre-cleaning

The automatic feeder starts checking automatically whether the short electrode is permanently earthed.

```
test sensor
please wait........
```

The cleaning process is interrupted as soon as a fault message is displayed. See chapter „Alarms“.

If the short electrode is not earthed, the automatic feeder will start checking whether the electrodes and the solenoid valves are tight.

```
solenoid valves
are being checked
```

For that, the cleaning valve HE as well as the milk solenoid valve close automatically. The milk pump starts running simultaneously. The cleaning process is interrupted as soon as a fault message is displayed. See chapter „Alarms“.

In order to be sure that there is no milk left in the coil of the heat exchanger anymore, 800 ml of water are delivered automatically into the coil and pumped out via the mixer outlet valve. Then, the mixer is rinsed by a 500 ml water portion that is subsequently drained off. The coil is rinsed for 5 seconds by 800 ml of water, i.e. the water in the mixer jar circulates to the coil and is pumped out immediately afterwards. Now 1 liter of water is

delivered once again into the mixer jar via the coil and is drained off again via the mixer outlet valve. Finally the mixer jar is rinsed by a 500 ml water portion that is subsequently pumped out.

During the pre-cleaning process, the display shows:

```
pre-rinse HE
```

Main cleaning

During the main cleaning process, 1.25 liters of water and – in case the automatic feeder is equipped with a detergent dosing pump that has been previously selected in Setup – some detergent are delivered into the mixer jar. The water starts circulating. The display shows:

```
clean HE
```

Time starts running backwards from 10 to 0 minutes. Press Start/Stop to cut off the cleaning process at any time.

```
clean HE
rem.:10:00min stop?
```

After 10 minutes have lapsed, the liquid in the mixer jar is pumped out via the mixer outlet valve. The following message is displayed:

```
clean HE
emptying mixer
```

Rinsing

The rinsing process starts running in order to be sure that there is no detergent in the coil of the heat exchanger anymore. 800 ml of water are delivered automatically from the coil into the mixer jar and are then pumped out via the mixer outlet valve. The mixer is then rinsed by 500 ml of water that are subsequently drained off. The coil is rinsed for 5 seconds by 800 ml of water, i.e. the water in the mixer jar circulates to the coil and is pumped out immediately afterwards. Now 1 liter of water is delivered once again from the coil into the mixer jar and is drained off again via the mixer outlet valve. Finally the mixer jar is rinsed by a 500 ml water portion. This water is subsequently pumped out, too.

During the rinsing process the display shows:

```
afterrinse HE
```

The electrodes and valves are checked automatically. 1.5 liters of water are delivered into the mixer jar where they are stirred for 20 seconds. After that, they are drained off via the mixer outlet valve. This process should remove all residual foam inside the mixer jar.

```
afterrinse HE
   finished
```

After heat exchanger cleaning has been completed, the coil is filled with water. If an entitled animal enters the feeding station, the water portion in the heat exchanger will be delivered into the mixer jar and drained off via the mixer outlet valve. Only then a milk portion starts to be prepared.

Turn the program switch to position „Feeding Mode“, in order to go back to feeding mode.

Notes on automatic heat exchanger cleaning (time-controlled)

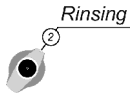
If the electrode is covered, automatic heat exchanger cleaning will be deferred for 1 hour at most so that an animal has the opportunity to drink up the liquid in the mixer jar. If the animal does not drink up the liquid within this time (the electrode is still covered), the liquid will be drained off via the mixer outlet valve and the cleaning cycle starts running.

If there is still milk in the stainless steel coil, the automatic heat exchanger cleaning will be deferred for 1 hour at most, too. If an entitled animal enters the feeding station within this time, the automatic feeder starts to prepare at least two portions of water + milk powder. After the animal has drunk up the liquid in the mixer jar the valve control closes the corresponding suction pipe and the heat exchanger cleaning starts running. If no entitled animal is identified within 1 hour, the milk will be pressed out of the stainless steel coil by some water and subsequently drained off via the mixer outlet valve.

If you enter „If Milk Empty Change to MP, no“ in menu „Milk Functions“, the milk in the stainless steel coil will not be fed to the animals. It will be pumped out via the mixer outlet valve before the cleaning process starts running.

Functional Steps „Cleaning, HE with Suction Hoses“ *(see chapter 14.3)*

In this menu you can activate heat exchanger cleaning including the suction hoses and the milk hose from the milk tank to the automatic feeder. The cleaning process takes place with detergent if the automatic feeder is equipped with a detergent dosing pump that has been previously selected in Setup.



Turn the program switch to position 2 = Rinsing.

```
cleaning          →
HE with sponge^
```

Select submenu „HE with Hoses“.

```
cleaning          →
HE with hoses^
```

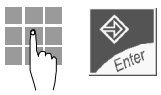
Press Arrow Right to move to next screen.

```
HE with hoses
cleaning ?    start
```

Press Start/Stop. If you have not activated the detergent dosing pump in Setup, the cleaning process will take place without detergent. If required, you can add some detergent manually.

If you have activated the detergent dosing pump in Setup, after pressing Start/Stop the display will show the following message:

```
clean HE
detergent 10g/L
```



Enter the detergent amount and press ENTER to confirm the input. The display shows:

```
hoses
ready ?        yes
```

In order to prepare the suction hoses for cleaning, proceed as follows:

- Remove the suction hoses from the teat.
- Remove the milk hose from the automatic feeder.
- If the milk hose has to be cleaned too, remove it from the milk tank. Before, close the stopcock of the milk tank.
- Put the suction hoses on the cleaning adaptor but do not connect them to the milk supply yet. Place the suction hoses on the ground so that the liquid can flow out smoothly.

- If you want to rinse the milk hose too, you have to connect it to the quick coupling of the cleaning adaptor.

As soon as the suction hoses are ready for cleaning, press ENTER to confirm „yes“ in order to activate the cleaning cycle .

```
hoses
ready ?        yes
```

Pre-cleaning

First the coil, the mixer jar, the valve unit as well as the hoses are pre-cleaned. For this the milk is pressed through the coil by the incoming water and then drained via the mixer jar, the valve unit and the connected hoses. In support of the cleaning process, push the button located at the upper left of the chassis to activate the feeding pump.

The display shows:

```
press feeding pump
pre-rinse ?   stop
```

The next water portion is dispensed as soon as the long electrode is free.

After all milk rests have been removed from the system (clear water comes out of the hoses), press Start/Stop to complete pre-cleaning. The display shows:

```
hoses
connected ?     yes
```

Connect the cleaning adaptor or the milk hose connected to it to the milk supply. Press ENTER to confirm „yes“.

The following message is displayed:

```
to deaerate
press feeding pump
```

In support of the deaeration process, push the button located at the upper left of the chassis to activate the feeding pump.

After deaeration has been completed (within 3 seconds the short electrode has to be hit 3 times by the water jet), the main cleaning process, lasting 10 minutes, starts running automatically. If the automatic feeder is equipped with a detergent dosing pump that has been previously selected in Setup, some detergent will be added to the cleaning water.

Time starts running backwards from 10 to 0 minutes. Press Start/Stop to cut off the cleaning process at any time.

```
clean HE
rem.:09:55min stop?
```

Main cleaning

If, after 3 minutes, the supply electrode has not been hit yet, the cleaning process will cut off. The display shows the fault message: „Failure !! Hoses not deaerated“.

At the end of the main cleaning process the automatic feeder checks whether the supply electrode is permanently earthed.

```
test sensor
please wait.......
```

The cleaning process cuts off as soon as the fault message is displayed. See chapter „Alarms“.

If the supply electrode is not earthed, the automatic feeder will check whether the electrodes and the solenoid valves are tight. The display shows:

```
solenoid valves
are being checked
```

The cleaning valve as well as the solenoid valve close automatically while the milk pump is running. The cleaning process cuts off as soon as a fault message is displayed. See chapter „Alarms“.

After the main cleaning process has been completed, remove the suction hoses from the milk supply of the automatic feeder. Only then rinsing starts running.

```
hoses
uncoupled       yes
```

After you have removed the hoses, press ENTER to confirm „yes“.

The following message is displayed:

```
press feeding pump
afterrinse     stop
```

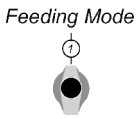
Rinsing

In support of rinsing, push the button located at the upper left of the chassis to activate the feeding pump. The cleaning water is pumped out via the mixer jar and the suction hoses connected to it. The next water portion will be delivered via the coil as soon as the long electrode (level electrode) is free.

After the residual detergent has been rinsed, press Start/Stop to complete the rinsing process. The display shows:

```
emptying mixer
```

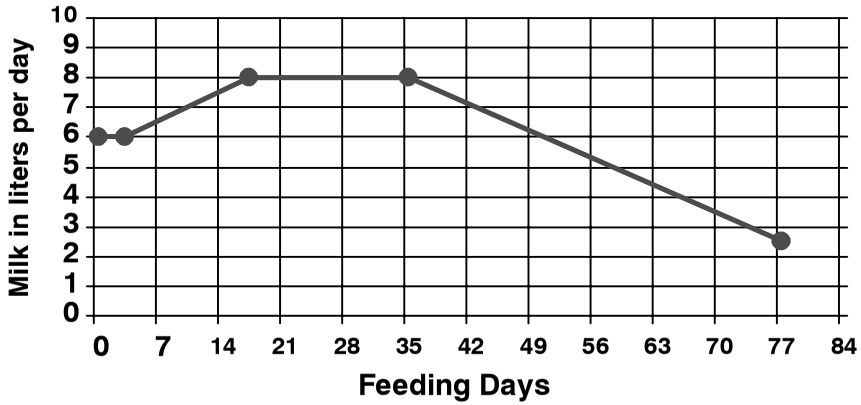
Rinsing ends as soon as the mixer jar is empty. The display jumps back to the initial menu „HE with hoses, Clean ? Start“.



Turn the program switch back to „Feeding Mode“.

Turn the program switch back to position „Feeding Mode“ only in case no detergent has been utilized or after you verified that there the system does not contain any water with detergent anymore.

Stand Alone
Standard- Feeding Plan Group A



Standard-Feeding Plan

P1: 3 days from 6 to 6 L
P2: 14 days from 6 to 8 L
P3: 18 days from 8 to 8 L
P4: 42 days from 8 to 2.5 L

total: 77 days = 478 L

Standard-Concentration Plan

P1: 77 days from 120 to 120 g/L

total: 77 days = 57 kg MP

Standard-Limited Quantities

P1: 14 days: 1.5 L (Min) 2.0 L (Max)
P2: 14 days: 2.0 L (Min) 2.5 L (Max)
P3: 49 days: 2.5 L (Min) 3.0 L (Max)

Standard - Feeding Plan Group B

Stand Alone
Standard- Feeding Plan Group B

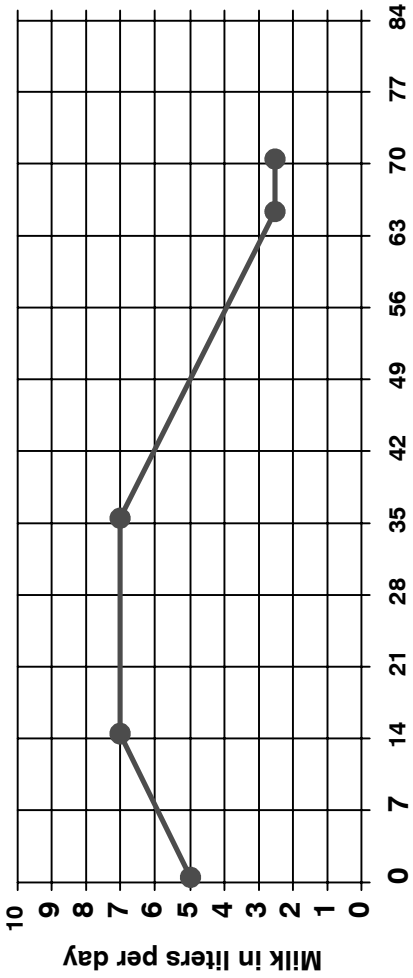
Standard-Feeding Plan
P1: 14 days from 5 to 7 L
P2: 21 days from 7 to 7 L
P3: 30 days from 7 to 2.5 L
P4: 5 days from 2.5 to 2.5 L

total: 70 days = 384 L

Standard-Concentration Plan
P1: 70 days from 120 to 120 g/L

total: 70 days = 46 kg MP

Standard-Limited Quantities
P1: 14 days : 1.5 L (Min) 2.0 L (Max)
P2: 14 days : 2.0 L (Min) 2.5 L (Max)
P3: 42 days : 2.5 L (Min) 3.0 L (Max)



Standard - Feeding Plan Group C

Stand Alone
Standard-Feeding Plan Group C

Standard-Feeding Plan

P1: 2 days from 5 to 5 L

P2: 6 days from 5 to 6 L

P3: 21 days from 6 to 6 L

P4: 35 days from 6 to 2.5 L

total: 64 days = 316 L

Standard-Concentration Plan

P1: 64 days from 120 to 120 g/L

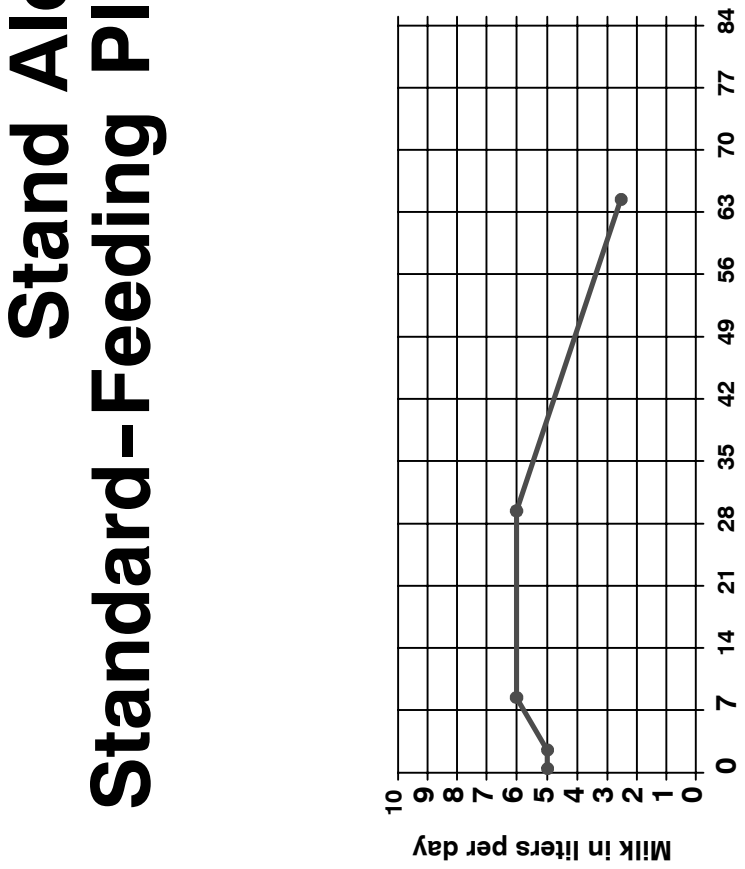
total: 64 days = 38 kg MP

Standard-Limited Quantities

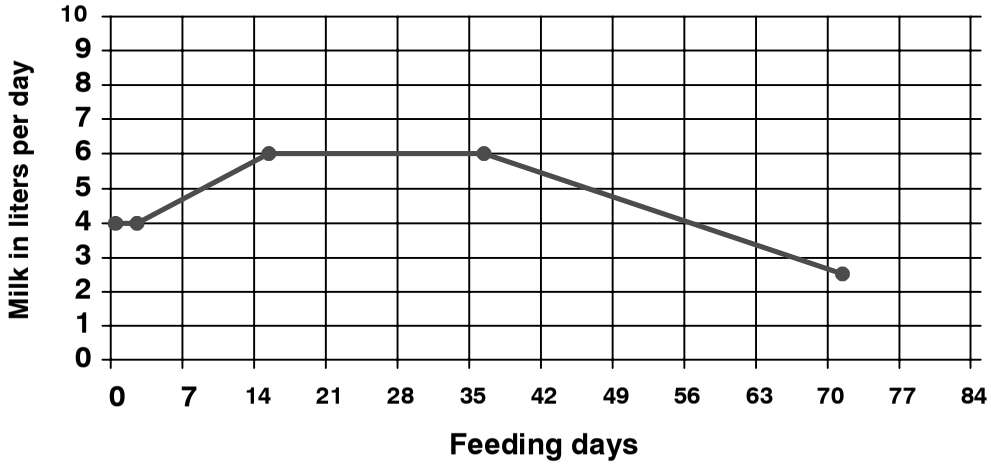
P1: 14 days: 1.5 L (Min) 2.0 L (Max)

P2: 14 days: 2.0 L (Min) 2.5 L (Max)

P3: 36 days: 2.5 L (Min) 3.0 L (Max)



Stand Alone
Standard- Feeding Plan Group D



Standard-Feeding Plan

P1: 2 days from 4 to 4 L
P2: 13 days from 4 to 6 L
P3: 21 days from 6 to 6 L
P4: 35 days from 6 to 2.5 L

total: 71 days = 346 L

Standard-Concentration Plan

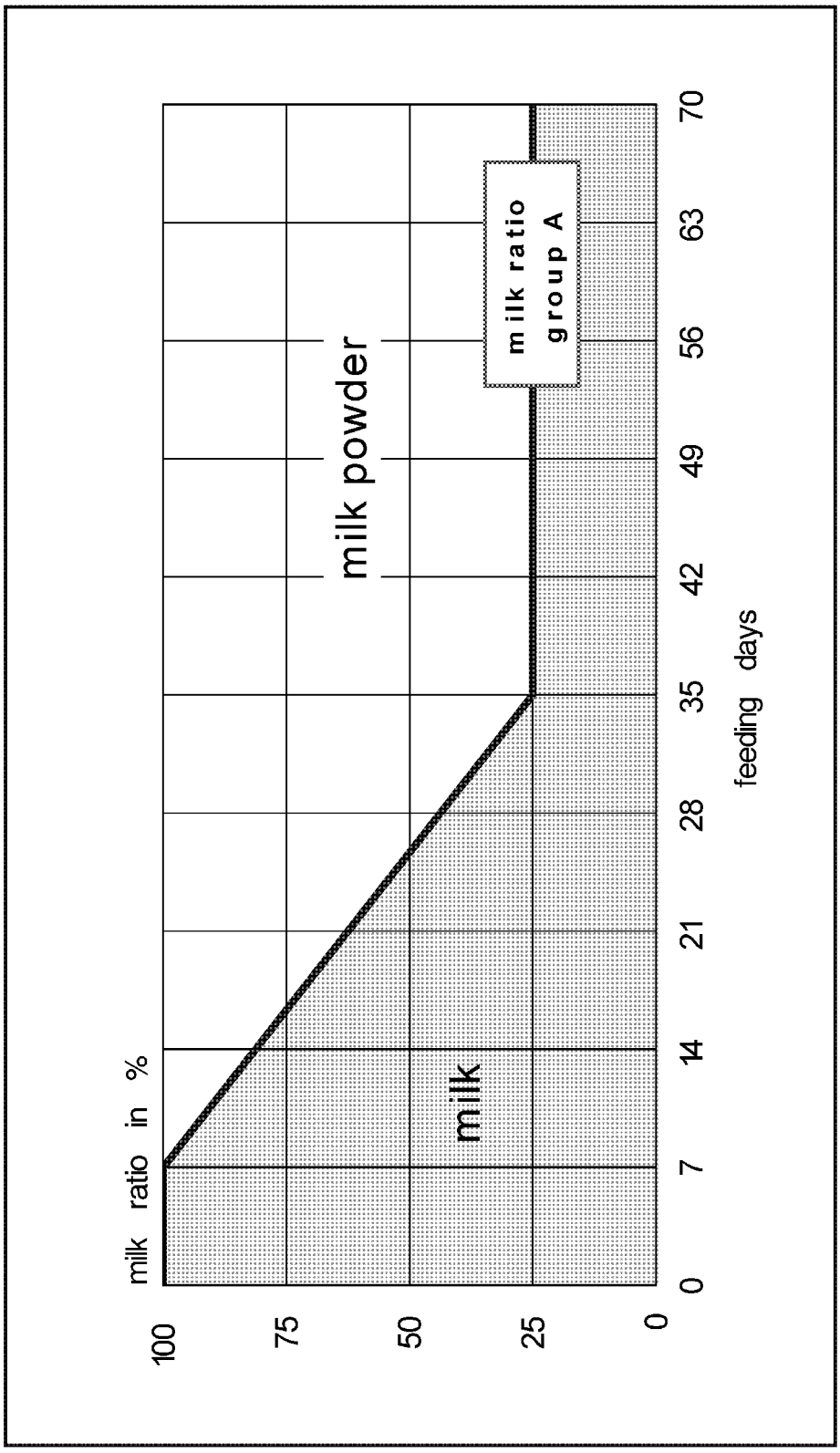
P1: 71 days from 120 to 120 g/l

total: 71 days = 42 kg MP

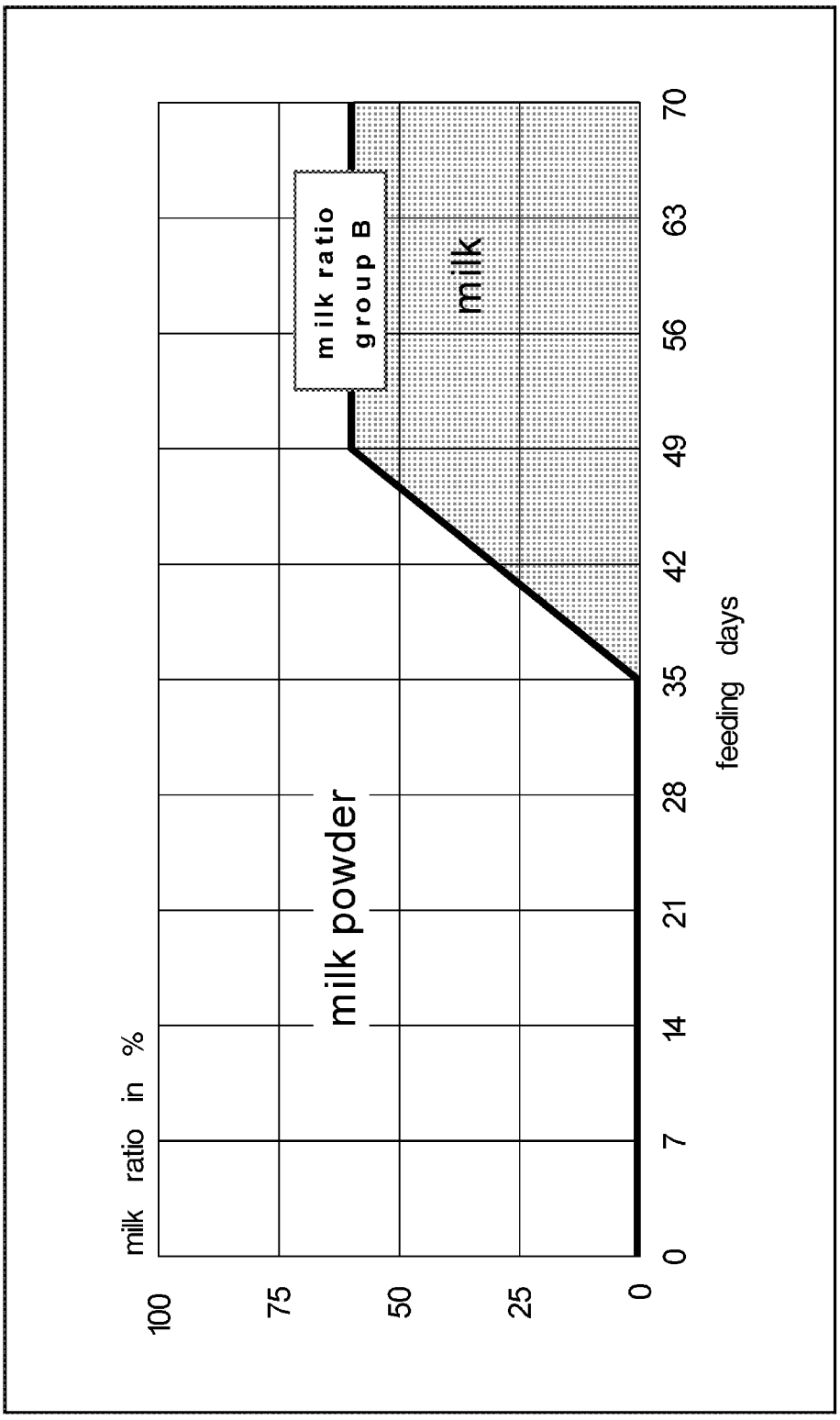
Standard-Limited Quantities

P1: 7 days: 1.0 L (Min) 1.5 L (Max)
P2: 14 days: 1.5 L (Min) 2.0 L (Max)
P3: 14 days: 2.0 L (Min) 2.5 L (Max)
P4: 36 days: 2.5 L (Min) 3.0 L (Max)

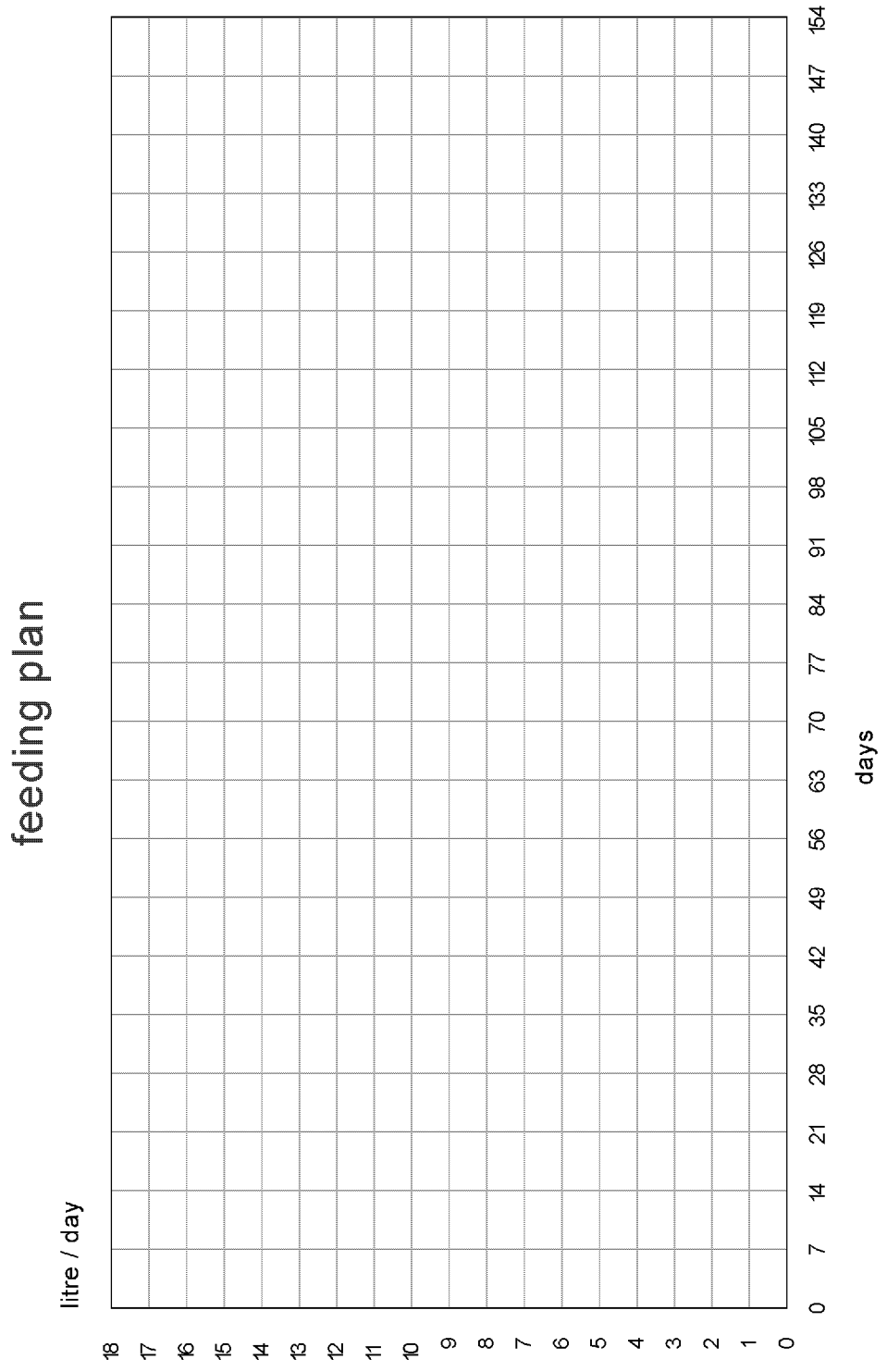
Example: Milk ratio plan group A



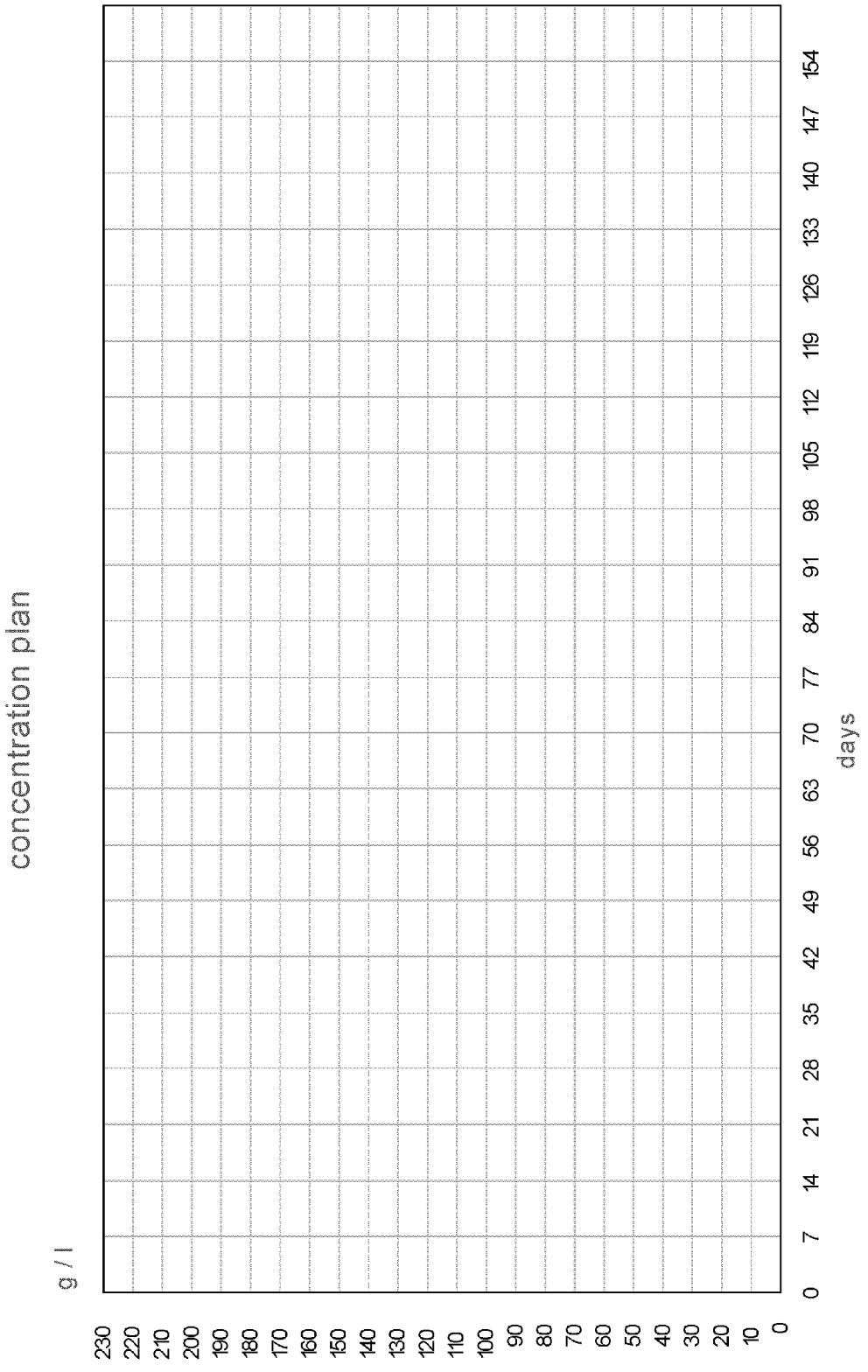
Example: Milk ratio plan group B



Form: Feeding plan



Form: Concentration plan



ProFormance

Supplement

- **Shortcut Keypad Sheet**
- **Start-up Guide**
- **Improved electrical earthing**
- **Wiring Diagrams**
- **Parts List**

Stand Alone Calf Feeder,
Combi Model

7163-9001-042
AU supplement 01.2006

WestfaliaSurge

Function Table, Program Switch Menu **PREMIUM SA COMBI** with Concentrate

1 Feeding Mode	Extra-Portion: When the mixer jar is empty, press Arrow Left. Enter distribution quantity + concentration. Press Start/Stop. Select distribution at box 1 or 2. Should the extra-portion be dosed into e.g. a bucket, press key „5“.				
2 Rinsing	HE with sponge ∧ ∨ →	cleaning? start			
	Heat exchanger ∧ ∨ →	cleaning? start			
	HE with hoses ∧ ∨ →	cleaning? start			
	Mixer ∧ ∨ →	cleaning? start			
	Air cleaning ∧ ∨ →	box selection / start			
	Settings ∧ ∨ →	heat exchanger ∧ ∨ →	automatically yes/no →	no. of cleaning processes/day →	time
		mixer ∧ ∨ →	automatically yes/no →	no. of cleaning processes/day	
		suction hose ∧ ∨ →	group ∧ ∨ yes/no →	as of 35th day of the feeding plan	
		remain. portion ∧ ∨ →	empty yes/no →	empty after ....minutes	
		detergent ∧ ∨ →	g / l		
		air cleaning ∧ ∨ →	set cycles/box →	cleaning water in ml →	
			break clean. when calf visits box →	empty remain. portion after 30 min	
3 Alarms (Machine Alarms, Animal Alarms)	Machine alarms ∧ ∨ →	alarm type →		Delete alarms with 0/C key	
	Messages drinking / C / expiry ∧ ∨ →	***Concentrate Warnings***			
	Warn. anim,feeding ∧ ∨ →	• *Warning today and warning yesterday are calculated regarding to the feeding plan*			
	Warn. anim., conc. ∧ ∨ →	• *3-days warning is calculated regarding to average consumption of the last 3 days*			
	Warn. anim., weight ∧ ∨ →				
	Expiry plan animals ∧ ∨ →				
4 Animal Verification	Feeding behaviour ∧ ∨ →	available drinking → No. box/consumption	consumpt.yesterday → No. box/consumption	breaks, no additives →	breaks with additive →
		dr. speed today →	dr. speed yesterday		
	C1+C2 ∧ ∨ →	avail. / consum. →	consumption yesterday		
	C1 ∧ ∨ →	avail. / consum. →	consum. yesterday →	C1 of 3-days ∅ →	dosing amount
	C2 ∧ ∨ →	avail. / consum. →	consum. yesterday →	C2 of 3-days ∅ →	dosing amount
	Visits ∧ ∨ →	visits fed →	visits not fed →	visit with C →	visit without C
	Animal scales ∧ ∨ →	animal weight, examine in list →		visit today →	day weight, yesterday/ day before yesterday
	Number of animals ∧ ∨ →	registered/avail. →	number of calves registered in group ∧ ∨		
5 Calibration	Water boiler ∧ ∨ →	***Calibration Process***			
	Water HE ∧ ∨ →	1. *Press Start to get calibration quantity*			
	Milk ∧ ∨ →	2. *Measure resp. weigh the calibration quantity*			
	MP ∧ ∨ →	3. *Check whether the calibration quantity is equal to the target quantity. If not, enter the amount distributed and repeat calibration process.*			
	Concentrate ∧ ∨ →				
	Additives ∧ ∨ →				
	Detergent ∧ ∨ →				
6 Animal Data	Weight/days fed ∧ ∨ →	weight/LWG →	days fed/reg. date →	correction days →	expiry C1/C2 plan
	Ration/day/animal ∧ ∨ →	feeding / C →	feeding/concentrat. →	MP/ milk →	X1-4 or EL consumed → C1 C2
	Cancel registration ∧ ∨ →	individually →	expired animals →	all animals	
	Register ∧ ∨ →	animal no. available →	register		
	Register groups ∧ ∨ →	animal 1-999 in group ∧ ∨		***Identification Numbers***	
	Autom. registration ∧ ∨ →	yes/no →	group/weight/LWG	***1-:*** *without transmitter number*	
	Change registration ∧ ∨ →	change into group ∧ ∨		***1a:*** *transmitter number available*	
	Transmitter input ∧ ∨ →	animal number / transmitter number →		*Animal No. 1 registered in group* ***A,B,C,D***	
				antenna test →	Squelch antenna
7 Deviations	Feed ∧ ∨ →	duration + quantity			
	Concentration ∧ ∨ →	duration + quantity			
	Concentrate ∧ ∨ →	C1 duration + quantity →		C2 duration + quantity	
	Additives ∧ ∨ →	duration + quantity			
8 Consumpt.	Milk req./consumed ∧ ∨ →	MP req./consumed →	X1-4needed + cons. / EL consumed →		C1/C2 needed/cons.
9 Additives	Medicine distribute ∧ ∨ →	animal-specific distribution/group distribution/ automatic prophylaxis →		X 1-4: duration + quantity →	distribution
	EL distribute ∧ ∨ →	animal-specific distribution/group distribution/ automatic prophylaxis →		EL: duration + quantity →	distribution
	Medicine prescription, make out ∧ ∨ →	select prescription 1-4 →	X1-4 g/100kg,g/day, g/l, yes/no →	distribution to all portions, 1-2 times/day →	per. 1-5
	EL presc.make out ∧ ∨ →	duration + quantity in g/l →		per visit, number of days without milk →	
	Remaining portion with additive, block ∧ ∨ →	block yes / no			
	Additives, info ∧ ∨ →	application today yes /no →	application yesterday yes / no →	breaks with additive, today / yesterday	

Function Table, Keyboard Menu „10“

Operating Functions							
1	Machine Data	date, time →	station no. prg.-vers.	prg. concentrate →	operating days		
2	Restricted/Ad libitum	today/ad lib yester. →	ad lib milk ratio →	ad lib concentration →	ad lib additive		
3	Milk Functions	milk functions ∧ ∨ →	milk mode →	change to MP →	milk value →	milk expelling →	
			milk ratio, one heat. circ. yes / no				
		milk ratio plan ∧ ∨ →	group ∧ ∨ →	period 1 – 5 →	duration milk ratio plan + feeding plan		
4	Accustoming Aid	feeding box ∧ ∨ →	accustom at box ∧ ∨ for..... minutes →		priority warn calves / box ∧		
5	Setup	concentrate ∧ ∨ →	silo ∧ ∨ available →	silo 1-4 ∧ ∨ C1/2 →	dosing code →	Squelch antenna	
		set baud rate ∧ ∨ →	baud rate 19200 ∧ ∨				
		printing ∧ ∨ →	auto print →	printing channel ∧ ∨			
		animal scales ∧ ∨ →	animal scales box 1/2 available yes/no →		weight factor →	tare value	
		interface test ∧ ∨ →	test channel 1 – 5				
		boxes ∧ ∨ →	box 1-2 available yes/no →		duration draining time box 1-2		
		distribution pause ∧ ∨ →	distribution pause in seconds				
		heat exchanger ∧ ∨ →	heat exchanger with automatic cleaning →		separate heating circuits ∧ ∨ with / without circulation pump		
		detergent pump ∧ ∨ →	available yes / no				
		air cleaning ∧ ∨ →	available yes / no				
		institute ∧ ∨ →	available yes / no				
Milk Feeding							
10	Feeding Plan	group ∧ ∨ →	period 1 – 5 →	duration of the plan →	plan requirement		
11	Concentration Plan	group ∧ ∨ →	period 1 – 5 →	duration concentration plan + feeding plan →	target consumption		
15	Quantity Limits	limits, group ∧ ∨ →	period 1 – 5 → minimum/maximum	duration quantity limits plan + feeding plan			
		carry over ∧ ∨ →	group ∧ ∨ yes / no				
16	Entitlement Intervals	group ∧ ∨ →	first / last interval →		number of entitlement intervals		
Verification Functions							
20	Alarm Levels	feed ∧ ∨ →	group ∧ ∨ →	cons. / dr. speed →	break no addit. →	break with additives	
		concentrate ∧ ∨ →	group ∧ ∨ →	warning suppress. →	warning today →	warn. yest. →	3-day w.
		LWG ∧ ∨ →	group ∧ ∨ →	% of animal weight	*This function is only displayed, in case “animal scales” have been activated in Setup.*		
21	List Printing	warning list ∧ ∨ →	verification list				
22	Total Consumption	milk/MP ∧ ∨ →	X1 + X2 →	X3 + X4 →	EL →	C1/C2	
23	Power Failures	mains interruption ∧ ∨ →	restore →	water check →	milk check		
25	Animal scales	box 1/2 ∧ ∨ → connection test	box 1/2 tare →	*This function is only displayed, in case “animal scales” have been activated in Setup.*			
		box 1/2 weigh					
Concentrate							
40	Concentrate 1-Plan	group ∧ ∨ →	period 1 – 5 →	duration concentrate 1-plan + feeding plan →	target consumption		
41	Concentrate 2-Plan	group ∧ ∨ →	period 1 – 5 →	duration concentrate 2-plan + feeding plan →	target consumption		
42	Quantity Limits	minimum save up ∧ ∨ →		group ∧ ∨			
		maximum quantity ∧ ∨ →		group ∧ ∨			
		carry over ∧ ∨ →	group ∧ ∨				
44	Entitlement Intervals	group ∧ ∨ →	first / last interval →		number of entitlement intervals		
45	Wean by Concentrate	weaning, group ∧ ∨ →		start, end			
49	Connection Test	test silo 1 & 2 →	test Silo 3 & 4				
Delete Functions							
90	Feed Delay / Consumption	delete feed / concentrate ∧ ∨ →	delete feed delay, group →	delete feed delay, animal number →	delete consump-tion group →	delete consumption animal number	
99	New Installation	all new ∧ ∨ →	operating data				

Abbreviations and Symbols

addit.	additive	MP	milk powder	w.	warning	as of version 00.11
avail.	available	LWG	life weight gain	warn.anim. . .	warning animals	
C/conc.	concentrate	no.	number	X 1-4	prescription 1-4	
clean.	cleaning	per.	period	yester.	yesterday	
concentrat. . . .	concentration	presc.	prescription	Ø	average	
consum.	consumption	prg.vers.	program version	∧ ∨	Arrow Up/Arrow Down active	
consumpt. . . .	consumption	reg.	registration	→	Arrow Right/Arrow Left active	
dr.	drinking	remain.	remaining			
g	gram	req.	requirement			
heat.circ. . . .	heating circuit	suppress.	suppression			
l	liter					

WestfaliaSurge Stand Alone Calf Feeder

Calf Identification - Keypad Entries

The Stand Alone Calf Feeder can hold up to 99 calves in it's CPU Memory at any time. When a calf is weaned / removed from the Calf Feeder it should be deleted at the Keypad to create CPU Memory space for another calf. If calves are not deleted from the keypad as they are weaned, the feeder will not accept new calf entries after the 99th calf has been entered.

Every calf on a Stand Alone Calf Feeder needs 2 eartags :-

- L ear a clearly visible Numbered Eartag (between 001 & 999)
- R ear an NLIS Electronic Eartag

NLIS Electronic Eartags have two numbers –

- an "external printed number"
- an "internal electronic responder number"

These two numbers are not the same, & only the "internal number" is used by the Calf Feeder's ID system.

Overview of Calf Entry

Entering a new calf at the Keypad is a two or three step process:-

1. Enter the calf's two identity numbers
   - the Numbered Eartag number (001 - 999), &
   - the NLIS eartag's "internal electronic responder number"

   It is easier to get a Drink Station antenna to "read" the "internal number" than to enter it manually. Manual entry is possible, but farmers need to contact their local DPI office to obtain a copy of their NLIS Eartag Table, which lists "printed external numbers" alongside the "internal responder number" for their NLIS tags.

2. Allocate the calf to a Calf Group
   There are three ways this can be done

3. If necessary, adjust the calf's age
   The Calf Feeder starts all calves on day 1 of their Feedplan unless told otherwise.

Details

1. Enter the calf's two identity numbers

Turn Dial to 6 (animal data & info).
Down arrow to "animal data & input - transmitter input" submenu.
Right arrow into this submenu.

a. Display reads "animal no: xxx transm-no: xxxxxxxx"
Scroll up or down to the first "unused / available" animal-number.
Press "enter" to open the display, then enter the "Numbered Eartag" number.
Confirm by pressing "enter".

b. Then for the "transm-no" field – first check that the cursor is not flashing beside the "transm-no" display. If it is flashing, press "enter" to make it disappear.
Trap the calf in a Drink Station so it's R ear (NLIS Eartag) is adjacent to the Antenna.
Press the "start/stop" key & the antenna will read the electronic internal number.
When this number appears on the Keypad display lock it in by pressing "enter".

2. Allocate the calf to a Calf Group

Each calf must be allocated to a Calf Group in order to be fed.
If you enter a calf's identity numbers but don't allocate it to a group, it will not be fed.

There are 3 ways to allocate calves to groups –

- automatically
- individually
- in batches

If the farmer plans to use only 1 Feedplan, the calves can all be allocated to the corresponding Calf Group automatically. If the farmer intends to use more than 1 Feedplan, the calves will need to be allocated to groups either individually or in batches.

a. Automatic allocation (registration)
If the farmer wants to put all the calves into one Calf Group (say Group A / Feedplan A) then they can "turn on" the "automatic allocation" function at the Keypad.

Turn Dial to 6 (animal data &info).
Down arrow to "automatic register" submenu.
Right arrow to enter this submenu
Then work through the data entry fields as required (see s7.9.3 in manual).

If "automatic allocation" is activated, be alert to older calves & remove them at the end of their feedplan. Otherwise the day after the feedplan ends the calf will be automatically re-allocated to the group as a fresh calf on day 1 of a whole new feedplan.

b. Individual allocation (individual registration" - 7.9.1 / p 57)
This is straightforward & works well if only a few calves need to be entered & allocated each day.

Turn Dial to 6 (animal data &info).
Down arrow to "register" submenu.
Right arrow to enter this submenu.
Work through the available calf numbers, allocating them to groups one-by one.

c. Batch allocation ("group registration" – 7.9.2/p59)
This works you have a "run of calves" with an unbroken series of Numbered Eartags that all need to be allocated to the same Calf Group (eg 183 to 197 : register to B)

Turn Dial to 6 (animal data & info).
Down arrow to "register groups" submenu.
Right arrow to enter this submenu.
Press "enter" to open the displayed data, & work through the display.
You will be asked to allocate a run of calves to a particular group
eg "183 to 197 : register to A".
If another run of calves needs to be allocated to another group, repeat the process.

3. Enter correction days ("correct for age")

When a calf is allocated to a Calf Group, the feeder will start it on Day 1 of its Feedplan unless told otherwise. Calves that are 3-5 days old at entry don't need correcting, but calves much older than this should be "moved along the Feedplan", & this should be done individually for each "older" calf.

Turn Dial to 6 (animal data &info).
Right arrow to "(calf no) corr. + 0 days"
Select the calf number to be "corrected" & press "enter".
Enter the number of correction days & confirm with "enter".

To Delete a Calf from the Keypad

A. Calf Feeders with Program Chip version 01.00 & later

Activate the "Cancel Animal Delete Transm" function in the "Setup" menu :-
Turn Dial to 10 (keyboard). Press 5 then "enter". This is the "setup" screen.
Down arrow through the options to "Cancel animal delete transm ?"
Right arrow into this submenu & set "yes" in the display.
Confirm with "enter".

Once this has been activated, removing a calf is simple :-
Turn Dial to 6 (Animal Data & Info)
Down arrow to "Cancel Registrat"
Right arrow into this submenu & select the calf to cancel.

B. Earlier Program Chip versions

Early program versions were created for European markets where the electronic responder is removed from the calf being weaned & put onto a new calf that is about to start on the Calf Feeder. Australian NLIS eartags are "whole-of-life eartags" - they should not be removed from one calf & put onto another. So Australian farmers need to clear both the "internal responder no" ("transmitter no") & "calf number" from the keypad for each calf at weaning from the calf feeder :-

Turn Dial to 6 (animal data & info).
Down arrow to "transmitter input" submenu.
Right arrow to enter this submenu.
Display reads "animal no: xxx transm no: xxxxxxxx"
Use the up or down arrow to find the calf you wish to remove.

- Press "enter" to open up this calf's identification field.
  The cursor should flash beside the Calf Number. Do not clear / delete the calf number at this stage - simply press "enter" again to shift the cursor to the bottom line ("transmitter no" field)
- Press the "0 / Clear" key to clear the "transmitter no". Confirm with "enter".
- Press "enter" again to open up the "Calf Number" field (again).
- Now clear the calf number by pressing the "0 / Clear" key. Confirm with "enter".

It is important that the responder number should be cleared before clearing the calf number.

WestfaliaSurge Australia
Start-up guide – Stand Alone (combi-model)

Equipment needed :

- Westfalia calf-feeder instruction manual 7163-9001-042 (date 07-2001)
- 2 x liquid measuring containers (for 10-20ml & 500-600ml volumes)
- paper bags to collect milk powder (& additives) for weighing
- weighing scales (accurate at 20g-200g weights)
- thermometer for water temps (accurate in 30C-50C range)

This guide is divided into 4 sections :-

1. for standard combi calf-feeders
2. for pellet feeders
3. for the powder additive dispenser
4. famer's record of settings

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for standard combi calf feeders

A. Before connecting to power (s6/p31)

1. open RHS door & turn off both thermostats (0 C) (6.1/p31)
   - the boiler hasn't been filled yet & the element would burn-out if thermostats were on.
2. plug into power & switch on
3. fill the boiler & the coil of the heat exchanger with water (6.2/p31)
   a. press & hold the "water" key on the keyboard until bubble-free water flows into the mixer jar. The boiler is now full.
   b. press & hold "water" & "pump" keys simultaneously until bubble-free water flows into the mixer jar. The coil of the HX is now full.
4. connect the large black plug-ends for the circulation fan
5. prime the circulation fan (s6.4)
   - loosen the de-aeration screw until some water flows out, then re-tighten screw.

6. turn the thermostats back on (7.6.1 & 7.6.2 / p51-52)
   - turn each dial until the coloured dot is joined (green = lower temp, red = upper temp)
7. fill the hopper with milk powder (6.5/p32)
   - keep the MP bag to refer to recommended mixing rates
8. fill the milk storage tank with milk (6.6/p33)
   - either keep it chilled, or add some 10% formalin

B. Keyboard setup

There are 2 basic settings to check / reset before proceeding further :-

1. check date & time, then
2. reset all data

1. check date & time (7.1/p34)
   - turn dial to 10 (keyboard). Press 1 then "enter".
     Display shows date (month, day, year format) & time.
     If incorrect, press "enter" to unlock the display, then correct as necessary, then press "enter" again to confirm the change.

2. reset all data for a new installation (7.2/p34)
   - turn dial to 10 (keyboard). Press 99 then "enter".
     Display asks "all new ?" Press "yes" then "enter".
   Display asks "instruction manual read ?" Press "yes" then "enter".
   Display will think for a while, then say "new installation finished".

C. <u>Configure the unit</u> ("setup" 7.3/p36)
This tells the keyboard which "components" have been installed, & performs several setup-tests.

On standard "combi" units there are 4 things to configure :-

1. drink-boxes (7.3.6)remember to enter <u>both</u> boxes
2. distribution pause (7.3.7)set to 16 sec.
3. a. heat exchanger (7.3.8)
   b. <u>with</u> automatic cleaning
   c. <u>with</u> separate heating circuit with circulation pump
4. detergent pump (7.3.9)
5. "Cancel Animal Delete Transm ?" (say "yes" to this)

Turn dial to 10 (keyboard). Press 5 then "enter". This is the "setup" screen.
Down arrow moves through the accessories :-
concentrate (pellet feeders) > baud rate > printing > animal scales > interface test > boxes (drink-stations) > distribution pause > heat exchanger > detergent pump > air cleaning > institute > connection test
Right arrow takes you into the submenu for that particular accessory or activity.
Work through the necessary submenus step-by-step as directed by the display.

D. <u>Calibrate (7.5/p41-46)</u>

note: try to get the farmer to watch the calibration steps – as it is a good idea if the farmer re-checks all the calibrations roughly once-a-month when the machine is in use.

1. On standard "combi" units there are 4 keyboard fields to calibrate :-
   water - boiler (7.5.1/p45-46)
   water – HE (milk) (7.5.1/p45-46)
   milk powder (7.5.1/p45-46)
   detergent (7.5.3/p48) - use alkaline detergent from the dairy

Turn dial to 5 (calibration). Display reads "calibration – water".
Down arrow moves through the things that could need calibrating:-
water boiler > water HE > milk powder > additive > detergent > concentrate (pellets).
Right arrow takes you into the submenu for that particular substance.
Work through the necessary submenus step-by-step as directed by the display.

2. Check water temperature (7.6.2 & 7.6.3 / p52)
Check that the orange boiler light is out / off, then deliver a 500ml dose of water into the mixer by repeating the steps for calibrating water volume (above).
Take the temperature of the water in the mixer with your thermometer.
Wait 30 seconds (the distribution time) & repeat the process.

Both doses of water should be between 38 C & 42 C. If not, adjust the thermostats appropriately, wait for the orange boiler light to go out, then repeat the tests.

If the water is too hot at first & you need to reduce the setting on the first thermostat (upper temp limit - red dot), you should also lower the setting on the 2nd thermostat (lower temp limit - green dot). If you don't, the 2nd thermostat may be set to a higher temp than the 1st, & the machine won't work.

E. Set machine feeding-mode ("feeding-mode" - s10.1, 10.2 / p94)

This is really another configuration step. You tell the machine what it is working with :-

a. powdered milk only
b. liquid milk only
c. both (a combi !)

a. to operate on powdered-milk only

Set keyboard to "milk mode no" :-

Turn dial to 10 (keyboard). Press 3 then "enter".
Display reads "3 – milk functions"
Right arrow to "3 – milk mode yes"
Press "yes/no" to change to "3 – milk mode no"
Confirm with "enter".

b. to operate on liquid-milk only

Set two fields as follows :-

i. set to "milk mode - yes"
ii. set to "change to MP – no"

Turn dial to 10 (keyboard). Press 3 then "enter".
Display reads "3 – milk functions"
Right arrow to "3 – milk mode yes"
Confirm with "enter".
Then press right arrow again.
Display reads "3 – if milk empty change to MP yes"
Press "yes/no" to change to "3 – if milk empty change to MP no"
Confirm with "enter"

c. to operate as a combi (on both liquid-milk & powdered-milk)

Set two fields as follows :-

i. set to "milk mode - yes"
ii. set to "change to MP – yes"

Turn dial to 10 (keyboard). Press 3 then "enter".
Display reads "3 – milk functions"
Right arrow to "3 – milk mode yes"
Confirm with "enter".
Then press right arrow again.
Display reads "3 – if milk empty change to MP yes"
Confirm with "enter"

F. Set Automatic Cleaning Schedules

F1. Heat Exchanger (14.5.1)

(this category won't appear if you have set the machine to operate on powdered-milk only)
Set the heat exchanger to be cleaned twice daily

Dial on 2 (cleaning). Display reads "cleaning HE with sponge".
Down arrow to "cleaning settings".
Right arrow to enter this submenu. Display reads "cleaning settings heat exchanger".
Right arrow into this section. Display reads "clean HE automatically no".
Change to "yes" & confirm with "enter".
Then right arrow again & display reads "clean HE 2 times / days"
Right arrow again to enter the times at which cleaning occurs.

F2. Mixer (14.5.2)

Set the mixer to be cleaned 1-9 times daily (suggest 6 times)

Dial on 2 (cleaning). Display reads "cleaning HE with sponge".
Down arrow to "cleaning settings".
Right arrow to enter this submenu. Display reads "cleaning settings heat exchanger".
Down arrow to "cleaning settings mixer".
Right arrow into this section. Display reads "clean mixer automatically no".
Change to "yes" & confirm with "enter".
Then right arrow again & display reads "cleaning mixer 1 times / days"
Enter the required number of daily cleanings, then confirm with "enter".

F3. Flush the drinking-hose (14.5.3)

The machine can be set to flush the mixer & drinking-hose with 250ml of water after every drink.

To set this flushing you have to specify both the calf-group (A–D) & calf-age (1 day–80 days). Don't set flushing to occur to very young calves – as calves often drink the "flushing water" at the end of the milk-drink. For young calves on small milk-drinks, 250ml of "flushing-water" will mix with the milk in their abomasum & interfere with milk-clotting, which will cause scouring. Suggest: set flushing to start from day 28.

Dial on 2 (cleaning). Display reads "cleaning HE with sponge".
Down arrow to "cleaning settings".
Right arrow to enter this submenu. Display reads "cleaning settings heat exchanger".
Down arrow to "cleaning settings suction hose".
Right arrow into this section. Display reads "clean hose pipe group A no".
Select the group, then change display to "yes" & confirm with "enter".
Then right arrow again & display reads "group X from 35 day of the feeding plan"
Enter the day to start the flushing (say day 20) then confirm with "enter".

F4. Clear leftovers (14.5.4)

If a calf leaves some milk in the mixer, you can set the unit to drain this away & flush the mixer after a specified time (range 0-99 min, suggest 5 min).

Dial on 2 (cleaning). Display reads "cleaning HE with sponge".
Down arrow to "cleaning settings".
Right arrow to enter this submenu. Display reads "cleaning settings heat exchanger".
Down arrow to "cleaning settings remaining portion".
Right arrow into this section. Display reads "remaining portion empty ? no".
Change display to "yes" & confirm with "enter".
Then right arrow again & display reads "remain portion after 30 min empty"
Enter the farmer's desired time-delay (say 5 minutes) then confirm with "enter".

F5. Detergent (14.5.5)

This sets the detergent quantity per litre of water.
Use alkali detergent from the dairy. Read the recommended mixing rate on the label of the detergent container, & calculate the amount needed for 1L of water in the mixer jar.

Dial on 2 (cleaning). Display reads "cleaning HE with sponge".
Down arrow to "cleaning settings".
Right arrow to enter this submenu. Display reads "cleaning settings heat exchanger".
Down arrow to "cleaning settings detergent".
Right arrow into this section. Display reads "detergent 0 g/L"
Enter calculated amount & confirm with "enter".

G. Demonstrate sponge-cleaning (14.1)

Sponge cleaning physically cleans the milk-warming coil inside the boiler.
It cannot happen automatically. The farmer has to do this in-person, & it should be done twice each week whenever the calf-feeder is operating with liquid-milk. There is no need to perform sponge-cleaning if the feeder is operating entirely on powdered-milk.

For sponge cleaning:

Dial on 2 (cleaning). Display reads "cleaning HE with sponge".
Right arrow to enter this submenu. Display reads "HE with sponge cleaning ? start"
Open the coupling for the sponge on the upper RHS of the front of the unit.
The sponge can be dipped in a cleaning detergent prior to entry if desired, but if so the coil should be rinsed at the end of sponge-cleaning.

Insert the sponge, close the coupling, & press "start/stop".
The sponge will be forced through the milk-warming coil under pressure & come-out in the mixer jar along with approx 750ml of water.
When finished display reads "HE with sponge cleaning finished".
Fold-out the mixer jar to drain the water & retrieve the cleaning sponge.
If the sponge was dipped in detergent, perform another sponge-cleaning without inserting the sponge in order to rinse any remaining detergent from the milk-warming coil.

H. Feed-plans

The calf feeder can store & operate 4 feedplans at once (A,B,C,D).
It comes pre-loaded with 4 "default" feedplans from Germany (A,B,C,D).
An outline of the "default" feedplans is given at the end of this startup guide.
If the farmer decides to use one of the "default" feedplans (most likely "feedplan D") just allocate the calves to that group when you enter them. You do not need to enter any feedplan data now.

Alternatively, 2 WestfaliaSurge Australia feedplans are also outlined at the end of this guide. If the farmer prefers one of these feedplans, or has their own individual feedplan, all the data for this feedplan should be entered now in place of one of the "default" feedplans.

To enter a new feedplan:-
Feedplans for combi-units require data-entry in 5 keyboard fields :-

1. daily drink-allowances
2. drink sizes
3. concentration periods
4. assign a "solid matter content" to fresh-milk
5. milk-ratio periods

The data given in the steps below is for the 2nd (advanced) WestfaliaSurge Australia feedplan.
Data in shaded fields is for information only – it is not entered into the keyboard.

H1. The milk-plan ("feeding plan" - s9.1.1)

Turn dial to 10 (keyboard). Press 10 then "enter".
Display reads "10 - feeding plan group A".
Enter desired calf-group (A, B, C or D) then confirm with "enter".
Right arrow takes you into the milk-plan period fields for that group.
Press "enter" to open the displayed data-fields, then work through the display entering data period-by-period as per the following table:-

period	length	Tally	daily milk-allowance			
1	5 days	days 1-5	from	3.0L	to	3.0L
2	25 days	days 6-30	from	3.0L	to	5.0L
3	25 days	days 31-55	from	5.0L	to	5.0L
4	20 days	days 56-75	from	5.0L	to	2.0L
5	5 days	days 76-80	from	2.0L	to	2.0L

H2. Drink sizes ("amount limits" - s9.5, 9.5.1 / p84-85)

This is where you set the minimum & maximum drink sizes.
When setting minimum drink sizes, think about two things :-

- calf satisfaction, &
- time of the 1st feed each day

re calf-satisfaction :-
If you set a small "minimum-drink size" (eg 0.5L), the calves won't feel satisfied after a drink. They will hang around the drink-station hoping for another "turn" & it can get quite congested around the drink-box.

re time of the 1st feed each day
The machine divides each calf's daily drink-allowance into 20 portions, & credits 1 portion per hour from 1am until 8pm. The calf will not be fed until it's credited portions reach the "minimum drink size".

eg - if daily drink-allowance is 3.0L, & minimum drink-size is 1.0L
daily drink allowance is divided into 20 portions & credited at 1 portion/hour (150ml/hr here).
At this rate it will take 7 hours to accumulate the minimum-drink, so the calves will get their first drink at 7am.

To set drink sizes

Turn dial to 10 (keyboard). Press 15 then "enter".
Display reads "15 - feeding amount limits".
Right arrow enters this submenu.
Enter desired calf-group (A, B, C or D) then confirm with "enter".
Right arrow again takes you into the drink-limits fields for that group.
Press "enter" to open the displayed data-fields, then work through the display entering data period-by-period as per the following table:-

period	length	tally	min drink	becomes available	max drink
1	5 days	days 1-5	1.0 L	7am	1.5 L
2	25 days	days 6-30	1.2 L	8am	2.0 L
3	25 days	days 31-55	1.6 L	8am	2.5 L
4	20 days	days 56-75	2.0 L	8am	2.5 L
5	5 days	days 76-80	2.0 L	8pm	2.0 L

H3. Concentration periods ("concentration plan" - s9.2 / p79)

a. for liquid-milk ONLY feedplans (no powdered-milk at all)
Set the concentration plan as a single period at 120g/L to 120g/L.
This matches the combi's default "solid-matter content" for fresh-milk (see G4c below).

Turn dial to 10 (keyboard). Press 11 then "enter".
Display reads "11 – concentr. plan group A"
Enter desired calf-group (A, B, C or D) then confirm with "enter".
Right arrow takes you into the concentration-plan fields for that group.
Press "enter" to open the displayed data, then work through the display, entering the following data :-

period	length	tally	concentration				description
1	80 days	days 1-80	from	120g/L	to	120g/L	100% liquid-milk only
			from		to		
			from		to		

Confirm with "enter" when finished.

b. for powdered-milk ONLY feedplans (no liquid-milk at all)
Different brands of milk powder need different mixing rates, so check the MP bag for the recommended rate for this brand. It seems to be standard practice amongst calf rearers to steadily increase MP concentration by around 20% over the first month.
ie - use the "bag" rate as the period 1 concentration (the starting rate).
- then in period 2, increase this by 20% (eg from 100g/L to 120g/L)
- then in period 3, sit on the increased rate (finishing rate).

Turn dial to 10 (keyboard). Press 11 then "enter".
Display reads "11 – concentr. plan group A"
Enter desired calf-group (A, B, C or D) then confirm with "enter".
Right arrow takes you into the concentration-plan fields for that group.
Press "enter" to open the displayed data, then work through the display, entering data period-by-period as per the following table:-

period	length	tally	concentration				description
1	10 days	days 1-10	from	rec g/L	to	rec g/L	starting rate
2	20 days	days 11-30	from	rec g/L	to	(rec+20%) g/L	building-up rate
3	50 days	days 31-80	from	(rec+20%) g/L	to	(rec+20%) g/L	finishing rate
			from		to		

Confirm with "enter" when finished.
(rec) = recommended concentration
(rec+20%) = 20% higher than the recommended concentration

c. for feedplans involving BOTH liquid-milk & powdered-milk
The settings are the same as for part b (powdered-milk only),
But it is important that you enter the next section (F4a) correctly.

H4. Assign a "solid-matter content" to fresh-milk (s10.3/p95)

a. for feedplans involving BOTH liquid-milk & powdered-milk
This setting is quite important.
In section F3 above, you entered the recommended mixing rate for this particular brand of milk powder as the "starting rate" in period 1 of your concentration plan. This should now also be entered as the "solid matter content" of the liquid-milk.

Turn dial to 10 (keyboard). Press 3 then "enter".
Display reads "3 – milk functions"
Down arrow to "3 – milk value 120 g/L SM"
This value (120g/L) should match the "starting rate" in period 1 of the concentration plan.
If it is different, press "enter" to open the display, then enter the desired (matching) "solid matter content" value, then confirm with "enter".

If you don't match the "solid matter content" of the liquid-milk with the "starting rate" in period 1 of the concentration plan, the combi will either
- dilute the fresh-milk with water if the liquid-milk SMC value is higher than the concentration plan value, or
- strengthen the fresh-milk with milk-powder if the fresh-milk SMC value is lower than the concentration plan value.

b. for powdered-milk ONLY feedplans (no liquid-milk at all)
there is no need to assign a "solid-matter content" to fresh milk (default value is 120g/L).

c. for liquid-milk ONLY feedplans (no powdered-milk at all)
there is no need to assign a "solid-matter content" to fresh milk (default value is 120g/L).

H**5. Milk-ratio periods (s10.6/p97)**

The percentages you enter here are the percentages of liquid-milk in the diet.
The balance (not entered) is the powdered-milk component.

a. for powdered-milk ONLY feedplans (no liquid-milk at all)

The milk ratio plan should be set to "from 0 to 0 %"

Turn dial to 10 (keyboard). Press 3 then "enter".
Display reads "3 – milk functions"
Down arrow to "3 – milk ratio plan"
Right arrow into this submenu
Select the group, then right arrow into the "milk ratio plan" fields for this group
Enter desired calf-group (A, B, C or D) then confirm with "enter".
Right arrow takes you into the "milk ratio plan" fields for that group.
Press "enter" to open the displayed data, then work through the display, entering the following data :-

period	length	tally	milk ratio				description
1	80 days	days 1-80	from	0%	to	0%	100% powdered-milk
			from		to		

Confirm with "enter" when finished.

b. for liquid-milk ONLY feedplans (no powdered-milk at all)

The milk ratio plan should be set to "from 100 to 100%"

Follow the steps as for part "a" (above), in order to enter the following data

period	length	tally	milk ratio				description
1	80 days	days 1-80	from	100%	to	100%	100% liquid-milk
			from		to		

Confirm with "enter" when finished.

c. for feed-plans involving BOTH liquid-milk & powdered-milk

This is where you enter more complicated milk ratio plans.
As an example – lets say the farmer wants to feed

i. fresh-milk only (eg fresh colostrum) for the 1st 10 days
ii. steadily changeover to 50% fresh-milk / 50% powdered-milk over the next 10 days
iii. sit on 50% fresh-milk / 50% powdered-milk for the next 10 days
iv. change abruptly to powdered-milk only for the final 50 days

Turn dial to 10 (keyboard). Press 3 then "enter".
Display reads "3 – milk functions"
Down arrow to "3 – milk ratio plan"
Right arrow into this submenu
Select the group, then right arrow into the "milk ratio plan" fields for this group
Enter desired calf-group (A, B, C or D) then confirm with "enter".
Right arrow takes you into the "milk ratio plan" fields for that group.
Press "enter" to open the displayed data, then work through the display, entering data period-by-period as per the following table:-

period	length	tally	milk ratio				description
1	10 days	days 1-10	from	100%	to	100%	100% liquid-milk
2	10 days	days 11-20	from	100%	to	50%	changing to 50/50 liquid : powdered milk
3	10 days	days 21-30	from	50%	to	50%	sits on 50/50
4	50 days	days 31-80	from	0%	to	0%	100% powdered-milk

I. Calf Identification

The calf feeder can store 999 calf numbers (0-999), but only 99 calves can be "active" (ie fed) at any one time. So when a calf is removed / weaned off the calf feeder, it's identity-details must be cleared to create space for a new calf (see J below).

Entering calves onto the system is a two or three step process:-

1. enter the calf's two identity numbers
    a. a visible eartag number (keyboard accepts 1-999), &
    b. the NLIS eartag "internal" responder number
2. allocate the calf to a group
    - there are three ways this can be done
3. if necessary, adjust for the calf's age
    - the machine starts all calves on day 1 of their feed-plan, unless told otherwise

When commissioning a calf-feeder always enter a few calf identities at each drink-station. This checks that both antennae are operating & allows you to check the squelch values on both of them.

NLIS eartag numbers

Inside each NLIS eartag is a responder with its own "responder number" (keyboard calls this "transmitter number"). This "internal" responder number is not the same as the printed number on the outside of the eartag. It's the "internal" responder number that is read by a drink-station antenna for calf-identification.

When entering calf identity numbers, it's easier to get a drink-station antenna to "read" the "internal responder number" into the keyboard (via "transmitter input") than to enter it manually. Manual entry is possible, but farmers need to contact the Dept of Agriculture for a copy of their NLIS eartag table. This table lists the printed external numbers alongside the corresponding internal responder numbers, for the NLIS eartags they have bought.

1. Enter calf identity numbers ("transmitter input" - 7.8.3/p55)
    Turn dial to 6 (animal data & info).
    Down arrow to "animal data & input - transmitter input" submenu.
    Right arrow to enter this submenu.

a. Display reads "animal no: xxx transm-no: xxxxxxxx"
    Scroll up or down to the first "unused / available" animal-number.
    Press "enter" to open the display, then enter the desired calf-number (no. on visible eartag).

b. then for the "transm-no" field – first check that the cursor is not flashing beside the "transm-no" display. If it is flashing, press "enter" to make it disappear.
    Then hold the calf's NLIS responder eartag in front of a drink-station antenna & press the "start/stop" key. (or hold the calf in drinking box so that it's eartagged ear is beside the antenna).
    The display thinks for a while as it reads the NLIS eartag, then bleeps & displays the "internal" responder number. Press enter to confirm this number.

c. Then press right arrow. Display reads "antenna test start".
    Press right arrow again. Display reads "squelch antenna feeding 180".
    Change the squelch figure to 0, then confirm with "enter".
    (this squelch-step needs to be done only once at each drink-station antenna).

2. Allocate the calf to a group ("registering" – 7.9/p57)
To be fed by the machine, a calf must be allocated to a group. If you enter the calf identity numbers (above) but don't allocate the calf to a group, it will not be fed.

There are 3 ways to allocate calves to groups –

a. automatically 7.9.3 / p56
b. individually 7.9.1 / p53
c. in batches / "groups" 7.9.2 / p55

If the farmer intends to use just 1 feedplan, the calves can be allocated to that group automatically. If the farmer intends to use more than 1 feedplan, the calves will need to be allocated to groups either individually or in batches.

2a. Automatic allocation / registration (7.9.3/p60)
If the farmer is going to put all the calves on one feedplan (say feedplan A) then all the calves can "automatically" allocated to that group (group A) by "turning on" the automatic allocation function.

Turn dial to 6 (animal data &info).
Down arrow to "automatic register" submenu.
Right arrow to enter this submenu
Then work through the data entry fields as required (see s7.9.3 in manual).

The problem with automatic allocation is that the farmer needs to watch out for older calves & remove them at the end of their feedplan. Otherwise the day after the feedplan ends the calf will be automatically re-allocated to the group as a fresh calf on day 1 of a whole new feedplan.

2b. Individual allocation (individual registration" - 7.9.1 / p 57)
This is straightforward & works well if only a few calves need to be entered & allocated each day.

Turn dial to 6 (animal data &info).
Down arrow to "register" submenu.
Right arrow to enter this submenu.
Work through the available calf numbers, allocating them to groups one-by one.

2c. Batch allocation ("group registration" – 7.9.2/p59)
This works when a there is a run of calves with an unbroken series of visible eartag numbers (eg 183-197) that all need to be allocated to a single group (eg 183 to 197 : register to B)

Turn dial to 6 (animal data &info).
Down arrow to "register groups" submenu.
Right arrow to enter this submenu.
Press "enter" to open the displayed data, & work through the display.
You will be asked to allocate a run of calves to a particular group
eg "183 to 197 : register to A".
If another run of calves needs to be allocated to another group, repeat the process.

3. Enter correction days (7.10 / p61)
The last part of entering a calf onto the machine is to "correct for age".
When a calf is allocated to a group, the machine puts it on day 1 of its feedplan unless told otherwise.
Calves that are 3-5 days old at entry don't need correcting, but calves much older than this should be "moved along the feedplan". This should be done individually for each "older" calf.

Turn dial to 6 (animal data &info).
Right arrow to "(calf no) corr. + 0 days"
Select the calf number to be "corrected" & press "enter".
Enter the number of correction days & confirm with "enter".

ALWAYS

When you have finished entering calf data & are about to walk away, check that you have turned the keyboard dial back to 1 (feeding). If the dial is not on 1 (feeding), the calves will not be fed !

J. Teaching calves to drink from the calf-feeder teat.

After you have entered the calf onto the machine, turn dial to 1 (feeding), & slip a bar behind the calf to keep it in a drink-station. When it's NLIS eartag is read by the antenna the machine will prepare a drink.

To help the calf learn to drink from the teat, press the manual "assistance button". This sends the prepared milk along the tubing to the teat & squirts a bit out at the calf. Assist the calf as necessary to get the hang of things.

The first few attempts can be messy & it is common to spill some of the calf's milk. If you want to give the calf more than its calculated entitlement you can give an "extra portion". This will not count toward its total daily entitlement. To give an extra portion (see 7.11.1) the mixer jar must be empty, so if necessary tilt the mixer jar forward to completely empty it.
Then with a bar behind the calf to keep it in the drinking box,

Leave dial on 1 (feeding).
Press the left arrow. Display reads "extra portion 0.5L 120g/L start".
Press "start / stop".
When the 500ml serving has been prepared the display will say "extra portion box ?"
Enter the drinking box number (1 or 2) that the calf is in.
You can then use the manual assistance button to deliver this milk to the teat.

Check the machine's drink-warnings every day if there are new / young calves on the system to make sure they are drinking. Most calves learn to drink within 2 days, but a few slow-learners may take up to 5 days to get the hang of it.

K. Clearing a calf from the keyboard (7.8.4 – manual responder input)

Calf Feeders with Program Chip versions 01.00 & later have a "Setup option" to "Cancel Animal Delete Transm ?" If this is activated (enter "yes") then removing a calf is simple - just turn the dial to 6 (Animal Data & Info), down arrow to "Cancel Registrat", then right arrow into this submenu & select the calf to cancel.

Earlier Program Chip versions were designed for European markets, where responders are taken-off one calf at weaning & put onto a new calf that is about to start on the calf-feeder machine.

In Australia, the NLIS eartags are whole-of-life eartags. They can't be removed from one calf & put onto another. So in Australia when a calf is removed / weaned-off the calf feeder, the "transmitter number" (NLIS responder number) must be cleared from the keyboard :-

Turn dial to 6 (animal data & info).
Down arrow to "transmitter input" submenu.
Right arrow to enter this submenu.
Display reads "animal no: xxx transm no: xxxxxxxx"
Use the up or down arrow to find the calf you wish to remove.
Press "enter" to open up this calf's identification fields.
Press "0 / clear" to clear the visible calf number, then press "enter" to confirm
This should open up the 2nd-line (transm-no field - cursor should be flashing),
Press "0 / clear" to clear the transmitter no, then press "enter" to confirm.
Then press "9 / escape" to return to the start of the menu.

L. Changing a calf to another group (13.5.4/p126)

Turn dial to 6 (animal data & info).
Down arrow to "change registrat" submenu.
Right arrow to enter this submenu.
Display reads "(calf no) change into A".
Select calf number & confirm with "enter".
Then select desired / new group & confirm with "enter".

Keyboard display messages

1. Basic messages

a. When the drink-boxes are empty, the display tells you :-
- current operating-mode
- the number of calves with drink warnings
- the number of calves that have finished their feeding plan ("exp" = expired)

eg. "MP mode dr-warn: 3 exp: 1"
This means - the machine is in powdered-milk only mode
- 3 calves have a current drink warning
- 1 calf has finished it's feedplan (expired)

b. When there is a calf in a drink-box, the display tells you :-
- the calf's number & group
- the calf's current drinking-right

eg. "123 A feeding 1.5L"
This means - calf no 123, in group A
- currently has 1.5L drinking-right

c. If the calf has a drinking right that exceeds the maximum drink-size, the display will say "limit feeding" (& give the total drinking right)

eg. "123 Alimit feeding 2.5L"

d. If the calf doesn't have a drinking right at the moment, the display says "feeding blocked"

eg. "123 Afeeding blocked"

2. Drinking Alarms

The calf feeder keyboard gives 3 drinking alarms

1. low milk consumption
   - alarm is triggered when a calf has consumed < 80% of it's current drinking right
2. slow drinking speed
   alarm is triggered when a calf drinks at <70% of it's average drinking speed
3. breaks during drinking
   alarm is triggered if a calf takes 2 or more pauses during drinking

3. Changing alarm trigger-levels ("warning levels" – 9.6.1)

to adjust an alarm level :-
turn dial to 10, press "20" then "enter". Display reads "20# warning level feeding"
Follow the prompts & fill out the data-fields as requested by the display.

4. <u>Checking calves with alarms</u>

Turn dial to 3 ("machine alarms").
Display reads "messages: dr: xx C: xx exp: xx"
dr = drinking
C = concentrate (pellets)
exp = expired (finished the feedplan)

Down arrow to "warning animals feeding: xx".
Right arrow into this submenu. Display gives details on the 1st calf with a drink warning:
eg "123B fr 10.35 2.0L 1 (6.0) cons 1.0L"
123B means calf no 123, in group B
fr 10.35 means it last drank at 10.35am
2.0L is the current drinking-right
1 (6.0) means it last drank at drink-box no 1, & today's total drink allowance is 6.0L
cons 1.0L means it has drunk 1.0L so far today

Right arrow gives the details on feed consumption yesterday.
Next right arrow gives the number of breaks (pauses) during drinking both today & yesterday
Another right arrow gives drinking speed data for today
eg "123D dr speed l/min today 74% = 0.86"
123D means calf no 123 in group D
today 74% means drinking speed today is 74% of average drinking speed over last 3 days
0.86 means today's drinking speed is 0.86 L / min

And finally right arrow again gives the drinking speed data for yesterday.

5. <u>Checking all calves (including alarm calves)</u>

Turn dial to 4 (verification).
Display reads "calves with right feeding behaviour".
Right arrow into this submenu & the display givestoday's drinking details for the 1st calf (as above)
Right arrow gives yesterday's drinking details.
Right arrow gives the no of pauses / breaks during drinking today
Right arrow gives pause-details for yesterday
Right arrow gives todays drinking speed as a % of the average speed over the last 3 days
Right arrow again gives drinking speed details for yesterday.

6. <u>Checking no of visits</u>

Dial on 4 (verification). Display reads "calves with right' feeding behaviour".
Down arrow to "animal verific visits"
Right arrow & the display gives 1st calf no, & the no of times it has been fed today & yesterday
Right arrow again gives the no of times it entered a drink box & was not fed today & yesterday.

7. <u>Checking number of animals on the machine</u>

Dial on 4 (verification). Display reads "animal verific number of animals"
Right arrow & display gives the total no of calves registered at the moment, & the number of spare registrations available.
Right arrow again for details on the no of calves registered in each group.

Feedplans for Stand-Alone Combi units

Default feedplans A,B,C,D are already entered into the keyboard.
If you want to use one of them, just allocate calves to the corresponding group.

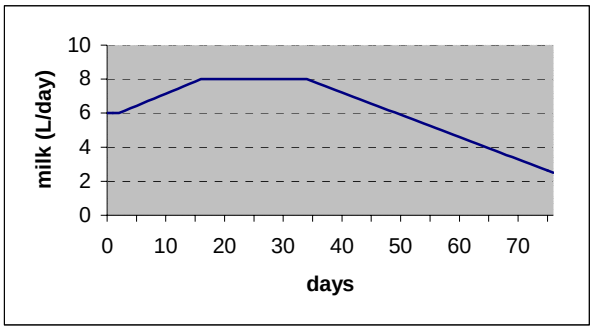
The WestfaliaSurge Australia feedplans have not been entered into the keyboard.
To use either of them, enter the data into the keyboard in place of a particular feedplan (A,B,C,D), then allocate the calves to that group.

note-1: the following tables give only the basic data for each feedplan.
Data for the following 3 fields have not been included :-
- concentration periods (see F3),
- solid-matter-contents (see F4), &
- milk-ratio-periods (see F5)

These fields all require data-input, but it will be farm-specific, so general tables have not been attempted here.

note-2: data in shaded fields is for information only – it is not entered into the keyboard.

Default Feedplan A



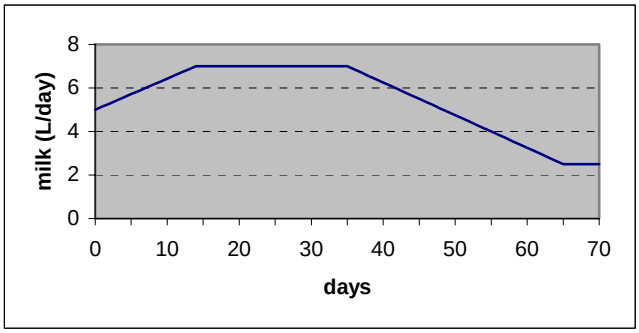
Daily allowances

period	length	Tally	daily drink-allowance			
1	3 days	days 1-3	from	6.0L	to	6.0L
2	14 days	days 4-17	from	6.0L	to	8.0L
3	18 days	days 18-35	from	8.0L	to	8.0L
4	42 days	days 36-77	from	8.0L	to	2.5L

Drink sizes

period	length	tally	min drink	becomes available	max drink
1	14 days	days 1-14	1.5 L	5am	2.0 L
2	14 days	days 15-28	2.0 L	7am	2.5 L
3	49 days	days 29-77	2.5 L	7am	3.0 L

Default Feedplan B



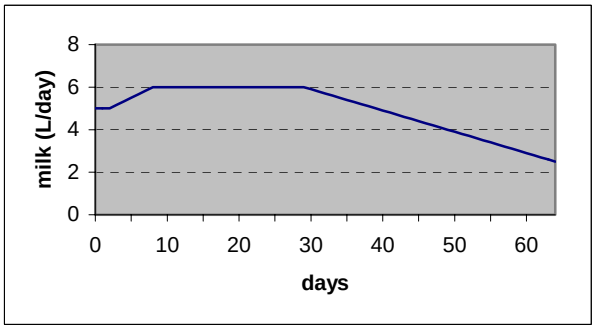
Daily allowances

period	length	tally	daily drink-allowance			
1	14 days	days 1-14	from	5.0L	to	7.0L
2	21 days	days 15-35	from	7.0L	to	7.0L
3	30 days	days 36-65	from	7.0L	to	2.5L
4	5 days	days 66-70	from	2.5L	to	2.5L

Drink sizes

period	length	tally	min drink	Becomes available	max drink
1	14 days	days 1-14	1.5 L	6am	2.0 L
2	14 days	days 15-28	2.0 L	8am	2.5 L
3	42 days	days 29-70	2.5 L	9am	3.0 L

Default Feedplan C



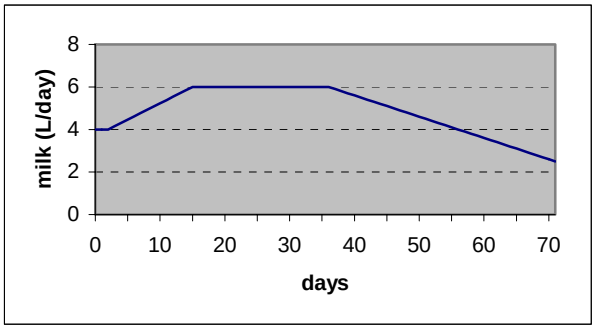
Daily allowances

period	length	tally	daily drink-allowance			
1	2 days	days 1-2	from	5.0L	to	5.0L
2	6 days	days 3-8	from	5.0L	to	6.0L
3	21 days	days 9-29	from	6.0L	to	6.0L
4	35 days	days 30-65	from	6.0L	to	2.5L

Drink sizes

period	length	tally	min drink	Becomes available	max drink
1	14 days	days 1-14	1.5 L	6am	2.0 L
2	14 days	days 15-28	2.0 L	8am	2.5 L
3	37 days	days 29-65	2.5 L	9am	3.0 L

Default Feedplan D



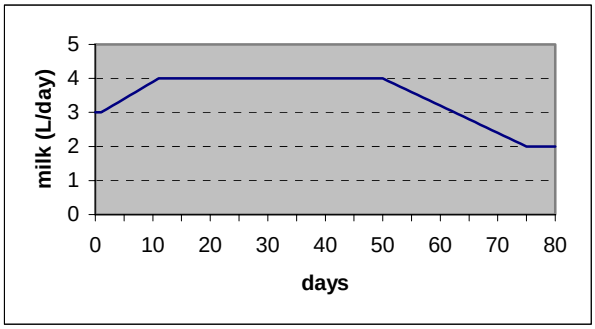
Daily allowances

period	length	tally	daily drink-allowance			
1	2 days	days 1-2	from	4.0L	to	4.0L
2	13 days	days 3-15	from	4.0L	to	6.0L
3	21 days	days 16-36	from	6.0L	to	6.0L
4	35 days	days 37-71	from	6.0L	to	2.5L

Drink sizes

period	length	tally	min drink	Becomes available	max drink
1	7 days	days 1-7	1.0 L	5am	1.5 L
2	14 days	days 8-21	1.5 L	8am	2.0 L
3	14 days	days 22-35	2.0 L	7am	2.5 L
4	36 days	days 36-71	2.5 L	9am	3.0 L

WestfaliaSurge Australia – Feedplan 1 (traditional calf feeding)



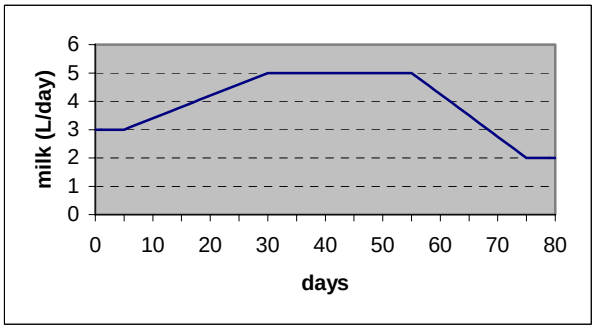
Daily allowances

period	length	tally	daily drink-allowance			
1	10 days	days 1-10	from	3.0L	to	4.0L
2	40 days	days 11-50	from	4.0L	to	4.0L
3	25 days	days 51-75	from	4.0L	to	2.0L
4	5 days	days 76-80	from	2.0L	to	2.0L

Drink sizes

period	length	tally	min drink	Becomes available	max drink
1	10 days	days 1-10	1.0 L	5am	1.5 L
2	40 days	days 11-50	1.6 L	8am	2.0 L
3	30 days	days 51-80	1.6 L	7am	2.0 L

WestfaliaSurge Australia – Feedplan 2 (advanced calf-feeding)



Daily allowances

period	length	tally	daily drink-allowance			
1	5 days	days 1-5	from	3.0L	to	3.0L
2	25 days	days 6-30	from	3.0L	to	5.0L
3	25 days	days 31-55	from	5.0L	to	5.0L
4	20 days	days 56-75	from	5.0L	to	2.0L
5	5 days	days 76-80	from	2.0L	to	2.0L

Drink sizes

period	length	tally	min drink	Becomes available	max drink
1	5 days	days 1-5	1.0 L	5am	1.5 L
2	25 days	days 6-30	1.2 L	8am	2.0 L
3	25 days	days 31-55	1.6 L	7am	2.0 L
4	25 days	days 56-80	2.0 L	8pm	2.0L

for pellet feeders

The stand-alone calf feeder can handle up to 4 pellet-feeding stations (silo 1-4).
2 types of pellet or grain can be fed via the system, but only 1 type can be fed at each individual station.

A. Check switches in the transceiver for the pellet-feeder.

1. DIP switches – check that these are set for baud rate of 19200 (see manual 7.3.2)
2. Check that the feeding-mode switch is on "RAT" (restricted), not "ad-lib" (9.8.2)

B. Run a "connection test" (7.4)

When you have wired all cables connecting the pellet-feeder to it's transceiver, & the transceiver to the stand-alone (channel 2), test the connections :-

Dial on 10 (keyboard). Press 49 then "enter".
Display reads "49# connection test"
Right arrow into the next screen. Display reads "49# silo 1&2 test connection no"
Change display to "yes" & confirm with "enter".
Right arrow into the next screen. Display reads "49# silo 3&4 test connection no"
Don't change this screen. Just right arrow again to the next screen.
If the connections are effective, the screen says "49# silo 1&2 test connection OK"
If there is a problem, the screen says "49# silo 1&2 test connection error".
If there is an error, check your wiring connections again & repeat this test.
If there is still an error, you will need to perform an interface test (see 7.3.5).
Ring Tullamarine for assistance with this.

C. Configuration (7.3.1)

This tells the stand-alone keyboard that you have installed pellets feeder(s)
When configuring pellet feeders, the stand-alone keyboard uses the following terms:-

silos 1-4	pellet-feeding stations 1-4
C1, C2	the 2 types of pellet / grain

Dial on 10 (keyboard). Press 5 then "enter". Display reads "5# setup concentrate"
Right arrow into this submenu. Display reads "silo 1&2 available no"
Change display to "yes" & confirm with "enter".
Right arrow into next screen. Display reads "silo 1 C1"
(down arrow to check the setting for silo 2 if there is a 2nd pellet-feeder)
Right arrow into next screen. Display reads "dosing code group A"
Select the group (A-D), then right arrow into next screen.
Display reads "dosing code A C-plan no"
Down arrow changes screen to "dosing code A C-consump yes"
You have to choose here between "C-plan" & "C-consump" (details below)

Suggested settings
Set display to "dosing code A C-plan yes"
(this automatically changes the C-consump screen to "no")
Right arrow into next screen. Display reads "dosing code of C-plan 1.0%"
Press "enter" to open the display & change the value to "5.0%" then confirm with "enter"
Right arrow into next screen. Display reads "5# squelch antenna concentrate 180"
Press "enter" to open the display & change the squelch value to "0" then confirm with "enter".
This squelch adjustment needs to be done for each pellet-feeding station antenna.

C-plan & C-consump

These let you add a "bonus" to the first serving of pellets to every calf each day.
This is an enticement to help young calves learn about the pellet-feeder faster.

a. Most "pellet-allowance plans" offer young calves small amounts of pellets each day eg 0.2–0.5kg/day
b. each calf's daily pellet allowance is divided into 20 portions, & allocated at 1 portion per hour from 1am until 8pm.
c. the "minimum pellet-feed" is factory-set at 10% of the daily pellet-allowance.

So, if a young calf has a daily pellet-allowance of just 0.2kg (200g),
it becomes entitled to pellets at the rate of 10g/hour from 1am until 8pm.
The minimum pellet-feed is 20g (10% of daily allowance) so this will become available at 2am.
If this young calf entered the pellet-feeder soon after 2am & just 20g of pellets were dropped into the feed-bowl, this might not be enough to

a. attract the calf's attention so that it eats them, or
b. create a sufficiently pleasant & memorable experience so the calf remembers it & keeps coming back to the pellet-feeder for more. (Pavlov's dog)

That's why there's the option of adding a "bonus" to the first pellet-feed each day for every calf.

C-plan & C-consump are just different ways of calculating the "bonus".
With each of them, the range you can enter is 0.0 – 9.9%.

"C-plan" is a percentage of that day's pellet-allowance
"C-consump" is a percentage of daily pellet-consumption averaged over the last 3 days.

For very young calves, C-plan probably works better, & I suggest you set it at 5.0%,
For a calf entitled to just 0.2kg/day, the first pellet-feed will have a 10g bonus, which should make the feed a touch more attractive & memorable, & hopefully the calf learns to go back for more faster.

The bonus can be set higher (up to 9.9%), but remember that the setting applies equally to all calves on the system. At 9.9% an older calf with a daily pellet-entitlement of 2.5kg will get 250g bonus in their first feed each day, which may be a bit too generous (& perhaps even dangerous).
In my opinion 5% is a safer compromise.

D. Calibration (7.5.4)

This should be done separately for each pellet feeder.

Turn dial to 5 (calibration). Display reads "calibration – water".
Down arrow to "calibration concentrate"
Right arrow into this submenu. Display reads "calibration concentrate silo 1"
Right arrow to the next screen. Display reads "silo 1 dosing quantity: 0g"
Press the button low on the left-hand-side of the transceiver-box for pellet-feeder 1.
Collect & weigh the pellets dispensed into the feed-bowl.
Enter this weight into the stand-alone display, by pressing "enter" to open the display, enter the weight, & confirm with "enter".

D. Feedplans for pellet feeders

These should be discussed with the farmer.

Feedplans for pellet-feeders require data-entry in 1 or 2 keyboard fields :-

1. the pellet plan (9.3)
2. the milk-weaning plan - optional (9.1.2)

The data used in the steps below are for the Westfalia Australia advanced feedplan.
Data in shaded fields is for information only – it is not entered into the keyboard.

D1. The pellet plan ("concentrate plan" 9.3)

Turn dial to 10 (keyboard). Press 40 then "enter".
Display reads "40 – C1-plan group A".
Enter desired calf-group (A, B, C or D) then confirm with "enter".
Right arrow takes you into the "pellet-period" fields for that group.
Press "enter" to open the displayed data-fields, then work through the display entering data period-by-period as per the following table:-

period	length	tally	daily pellet allowance	
1	5 days	days 1-5	from 0.2 kg	to 0.3 kg
2	40 days	days 6-45	from 0.3 kg	to 2.5 kg
3	35 days	days 46-80	from 2.5 kg	to 2.5 kg

D2. The milk-weaning plan – optional ("concentrate-dependent drinking" 9.1.2)

This lets you begin the process of weaning a calf off milk (reducing milk-plan allowances) as pellet-intake increases. It works in the same way as "correcting calf age" at registration.

When a calf's daily pellet-intake (averaged over 4 consecutive days) reaches the "start-value" of the weaning plan, the calf is "shifted along" it's milk-plan to the start of the "declining" period in the milk-plan (eg from 5.0L to 2.0L).

When the calf's daily pellet-intake (averaged over 4 consecutive days) reaches the "end-value" of the weaning plan, the calf is again "shifted along" it's milk-plan to the end of the "declining" period in the milk-plan.

Standard weaning points are start 0.5kg end 2.0kg

If you want to change the weaning points :-

Turn dial to 10 (keyboard). Press 45 then "enter".
Display reads "45 weaning group A no"
Enter desired calf-group (A, B, C or D), then right arrow to next screen.
Display reads "45# group X yes feed according to plan"
Down arrow & screen reads "45# group X no C-dependent feeding"

You have to choose between the two screens.
If you want to wean off milk as pellet-intake increases, you should
Down arrow to "45# group X no C-dependent feeding".
Press "yes/no" to change screen to "45# group X yes C-dependent feeding" & confirm with "enter" (this automatically changes the "feed according to plan" screen to "no").
Right arrow again & display reads "group X start 0.5kg end 2.0kg"
To change these values, press "enter" to open the displayed fields, then enter the desired values, then confirm with "enter".

for the powder additive dispenser

The additive dispenser only holds & dispenses 1 additive at a time, but the keyboard can store prescriptions for up to 4 medicines or supplements, & 1 electrolyte.
The keyboard refers to the additives as

medicine or supplement 1-4	X1-4
electrolyte	EL

A. Configuration

When you install the additive dispenser it does not have to be entered in "setup" on the keyboard.

B. Additive "plans"

Additives require data-entry in 2 keyboard fields

1. make out a prescription
   farmers can enter & store prescriptions & fill out the "distribution" fields when required.
2. distribute the prescription (which calves get it)

There are separate keyboard fields for

- the medicines & supplements (X1-X4)
- the electrolyte (EL)

for medicines & supplements (X1-4)

B1.1 Make out a prescription

Turn dial to 9 (additives). Display reads "medicine – distribute".
Down arrow to "medicine – prescr make out"
Right arrow & display reads "prescr 1 select"
Select the prescription number (1-4) & right arrow into that submenu
The medicine / supplement can be prescribed in 3 ways:-

- via the amount drunk "g / L"
- via calf weight "g / 100kg"
- fixed amount per day "g / day"

If you select "g/L" the medicine will be added every feeding of milk.
If you select "g/100kg" or "g/day" press right arrow again,
screen will say "distribution to all portions ? yes"
Press "enter" to select this option or press down arrow to select either
"1 time daily" or "2 times daily".
If you select "1 time daily", medicine is added to the first 4 mixer jars of milk each day.
If you select "2 times daily", medicine is added to the 1st feed each morning & the first feed after midday each day.
Next, press right arrow to enter the "prescription period" fields for this additive.
These are just like milk-plan fields, except the additive dispenser can only add 2g - 20g to each portion of milk (20g twice daily is 40g)
Fill out the prescription period fields as necessary & complete with "enter".

B1.2 Distribute the medicine or supplement (which calves get it)

turn dial to 9 (additives). Display reads "medicine – distribute".
Right arrow into this submenu. Select the prescription (X1-X4), & right arrow into the next screen. Display reads "animal specific distribution"
The medicine can be distributed in 3 ways:-

- to individual calves "animal specific"
- to a whole group "group distribution"
- to every **new** calf on the machine "automatic prophylaxis"

Down arrow to the desired method of distribution,
Then right arrow into that submenu & work through the fields that follow, filling in data as required.

for the electrolyte (EL)

B2.1 Make out the prescription

turn dial to 9 (additives). Display reads "medicine – distribute".
down arrow to "electrolyte – prescr make out"
right arrow into this submenu. Display reads "electrolyte for x days x g/L"
set the number of days for electrolyte treatment & the mixing rate of the electrolyte (in g per litre of water) then confirm with "enter".
Press right arrow & screen reads "per visit x.x L with milk"
enter the amount of electrolytes to be offered at each visit, then either select "with milk" or down arrow to "x days without milk".

If you select "with milk", the calf will continue to receive it's normal daily milk allowances, plus be offered electrolytes between milk-feeds, after a 2 hour "block".
If you select "x days without milk", then for "x" days (range is 0-9 days) the calf will be fed only electrolytes whenever it visits a drink station. It will not get any milk on these days.

eg if you have selected "with milk", if daily milk allowance is 4L/day & minimum milk-drink is set at 1.2L

- calf accumulates milk-entitlement at 200ml/hr & takes 6 hrs to accumulate the minimum-milk-drink of 1.2L.
- if the calf presents to a drinking station before it has accumulated the minimum milk-drink of 1.2L, it gets a dose of electrolytes. The machine then blocks it from drinking milk for the next 2 hrs.
- when the 2hr block expires, if it has accumulated right to the "minimum milk-drink" it will be fed milk. If it still hasn't accumulated the "minimum milk-drink" it gets another serve of electrolytes. Either way it is then blocked from everything for another 2 hours. This pattern continues throughout the day.

B2.2 Distribute the electrolyte (which calves get it)

turn dial to 9 (additives). Display reads "medicine – distribute".
down arrow to "electrolyte – distribute"
right arrow into this submenu. Display reads "animal specific distribution"
the medicine can be distributed in 3 ways:-

- to individual calves "animal specific"
- to a whole group "group distribution"
- to every **new** calf on the machine "automatic prophylaxis"

Down arrow to the desired method of distribution,
then right arrow into that submenu & work through the fields that follow, filling in data as required.

C. Calibration

You have to make out a prescription for an additive (C1.1 or C2.1) before the keyboard will let you calibrate it.

Turn dial to 5 (calibration). Display reads "calibration – water".
Down arrow to "calibration – additive"
Right arrow into this submenu. Display reads "calibration prescr 1"
Down arrow to select the particular additive (X1-4 or EL) then right arrow into the next screen.

As an example, to calibrate an electrolyte (eg Lectade),

Down arrow to "calibration EL"
Right arrow to "EL set: 10.0g measured: .,. g"
Hold a beaker beneath the additive outlet & press "start/stop".
Catch & weigh the dispensed additive, then enter this amount onto the keyboard & confirm with enter. Repeat the process until 10g is delivered consistently.

Farmers Record of Settings

C. Calibrations – last checked : _____

_____

_____

_____

E. Machine mode – set to : _____

F. Cleaning settings

no of automatic daily cleanings :- heat exchanger : _____

mixer : _____

flush drinking hose after _____ days

clear leftovers after _____ minutes

detergent rate _____ ml / litre

G. Feedplan record

Feedplan for group _____

Daily drink-allowances

period	length	tally	daily drink-allowance	
			from	to
			from	to
			from	to
			from	to
			from	to

Drink sizes

period	length	tally	min drink	becomes available	Max Drink

Concentration periods

period	length	tally	Concentration	
			from	to
			from	to
			from	to
			from	to
			from	to

Solid matter content of the liquid-milk :- _____ g/L

Milk ratio periods

period	length	tally	milk ratio	
			from	to
			from	to
			from	to
			from	to
			from	to

Daily pellet-allowances ("concentrate plan" 9.3)

period	length	tally	daily pellet allowance	
			from	to
			from	to
			from	to
			from	to
			from	to

Pellet-dependent weaning plan ("concentrate-dependent drinking" 9.1.2)

weaning points start _____ end _____

Feedplan for group _____

Daily drink-allowances

period	length	tally	daily drink-allowance	
			from	to
			from	to
			from	to
			from	to
			from	to

Drink sizes

period	length	tally	min drink	becomes available	Max Drink

Concentration periods

period	length	tally	Concentration	
			from	to
			from	to
			from	to
			from	to
			from	to

Solid matter content of the liquid-milk :- _____ g/L

Milk ratio periods

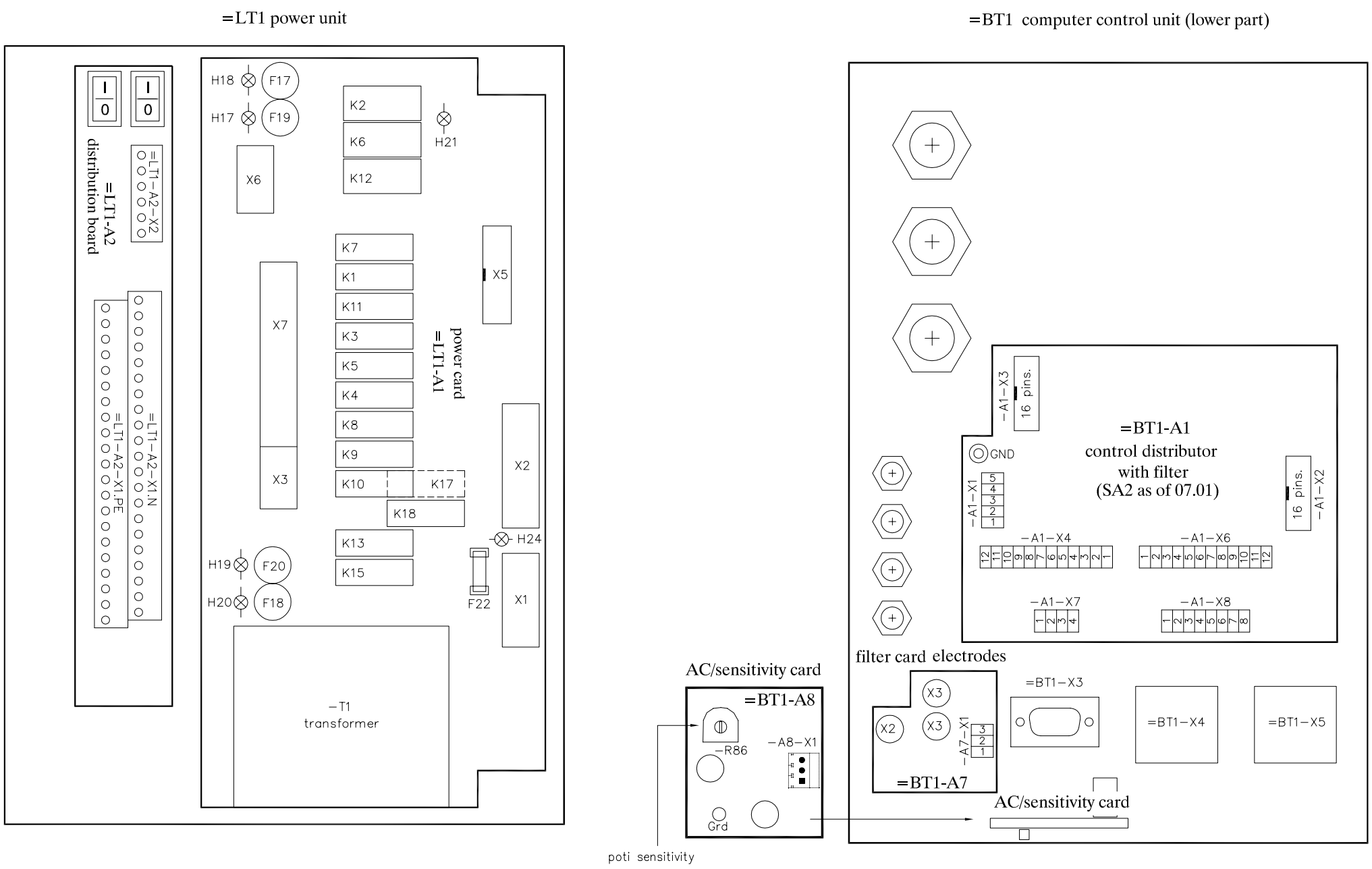
period	length	tally	milk ratio	
			from	to
			from	to
			from	to
			from	to
			from	to

Daily pellet-allowances ("concentrate plan" 9.3)

period	length	tally	daily pellet allowance	
			from	to
			from	to
			from	to
			from	to
			from	to

Pellet-dependent weaning plan ("concentrate-dependent drinking" 9.1.2)

weaning points start _____ end _____



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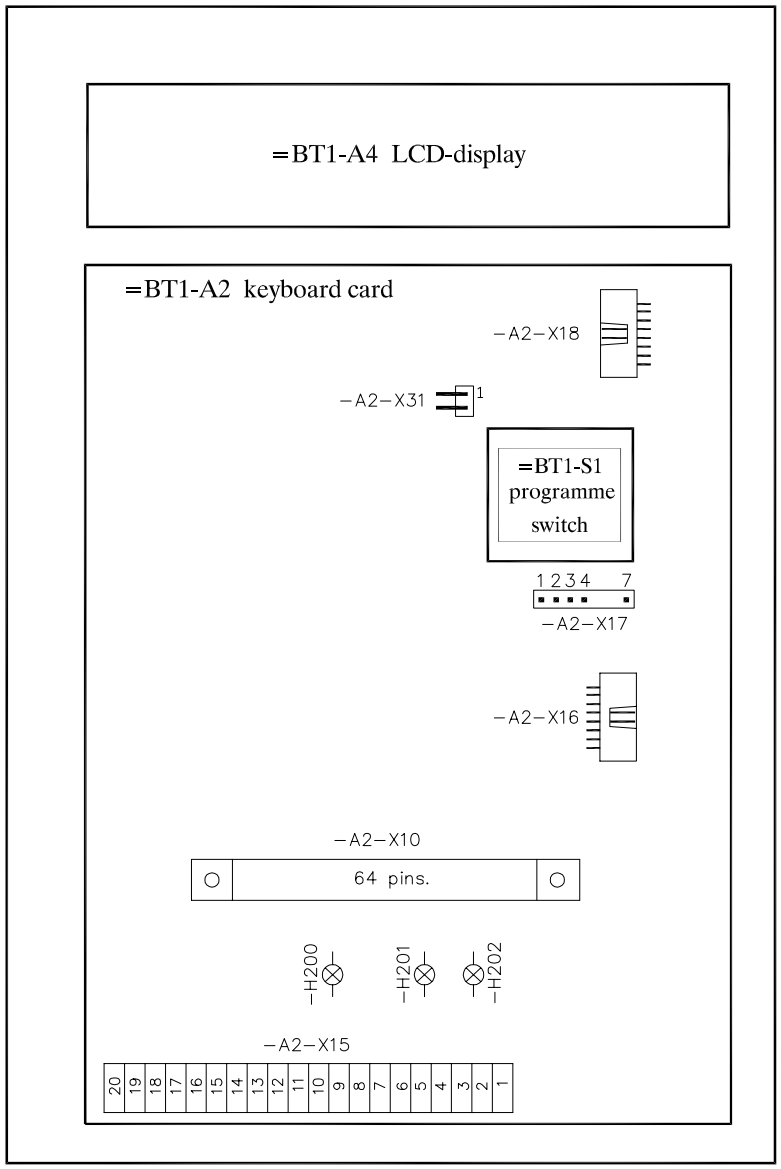
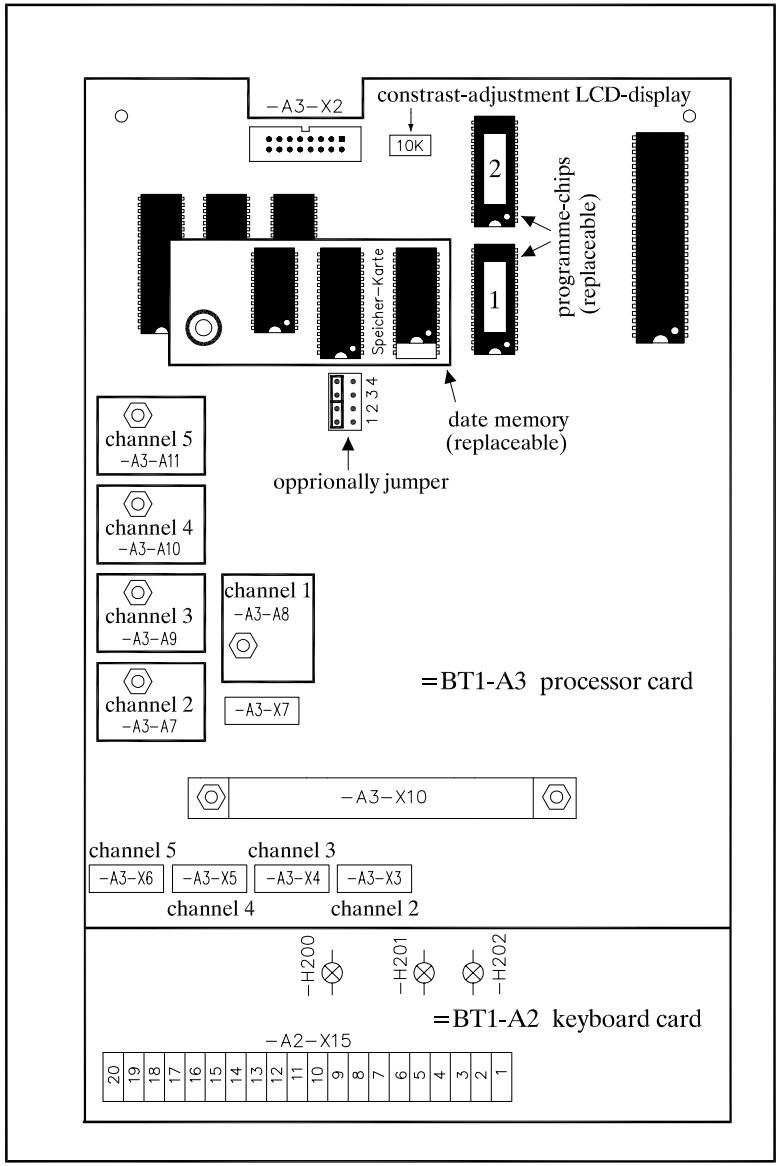
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:

0	1	2	3	4	5	6	7	8	9

=BT1 computer control unit (upper part)
without processor card



=BT1 computer control unit (upper part)
with processor card



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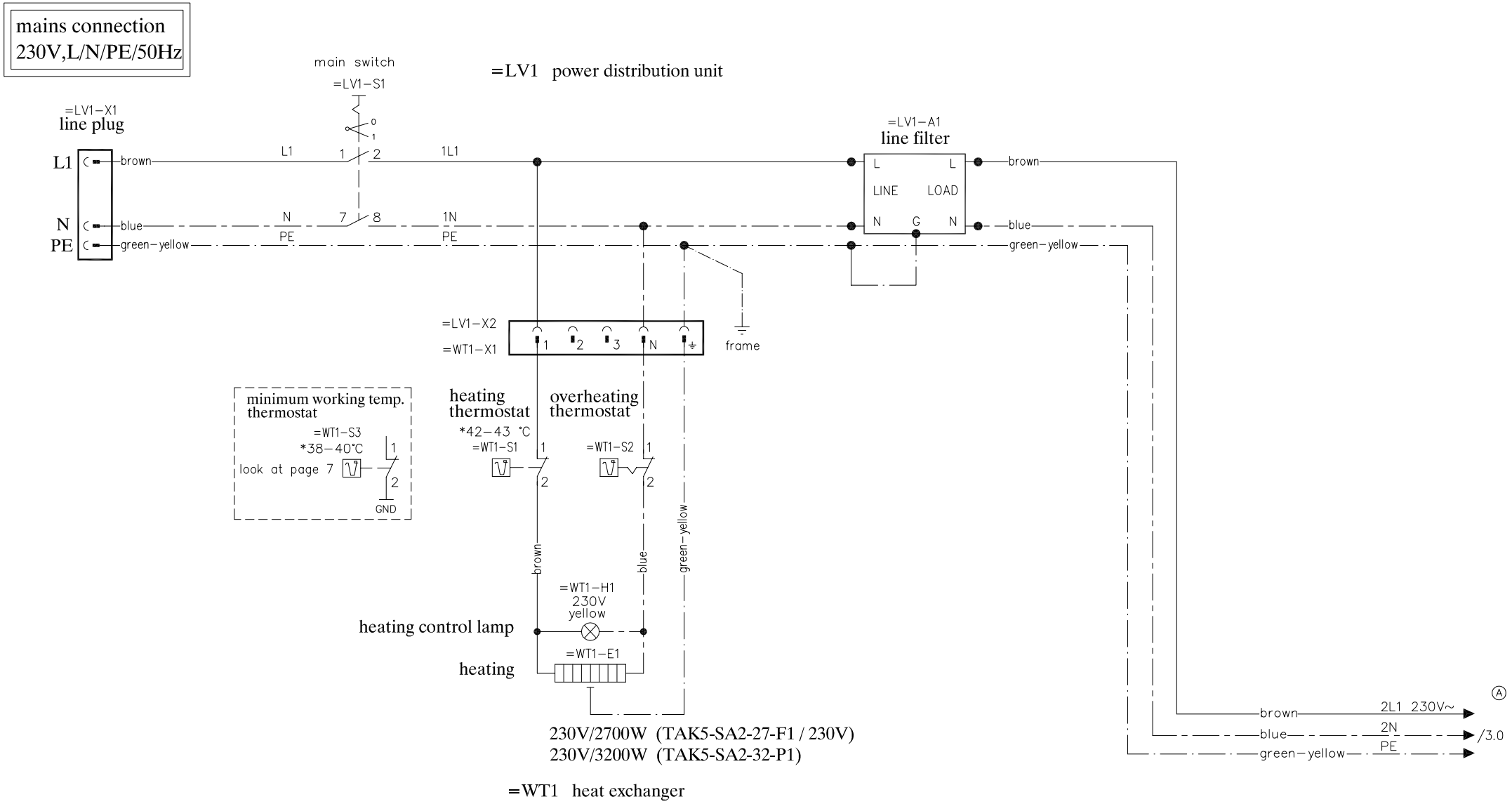

*approximate values temperature settings

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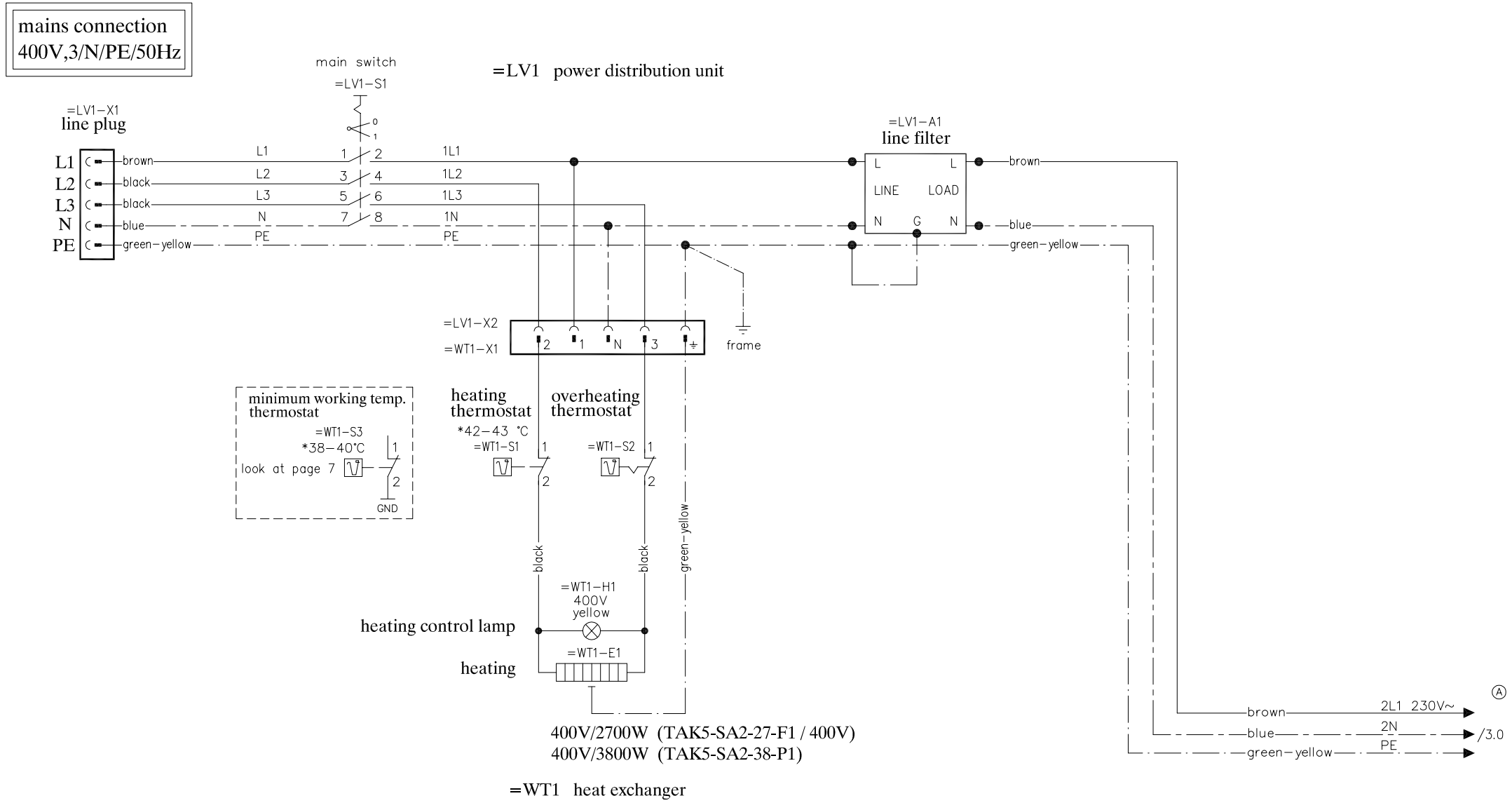
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:



*approximate values temperature settings

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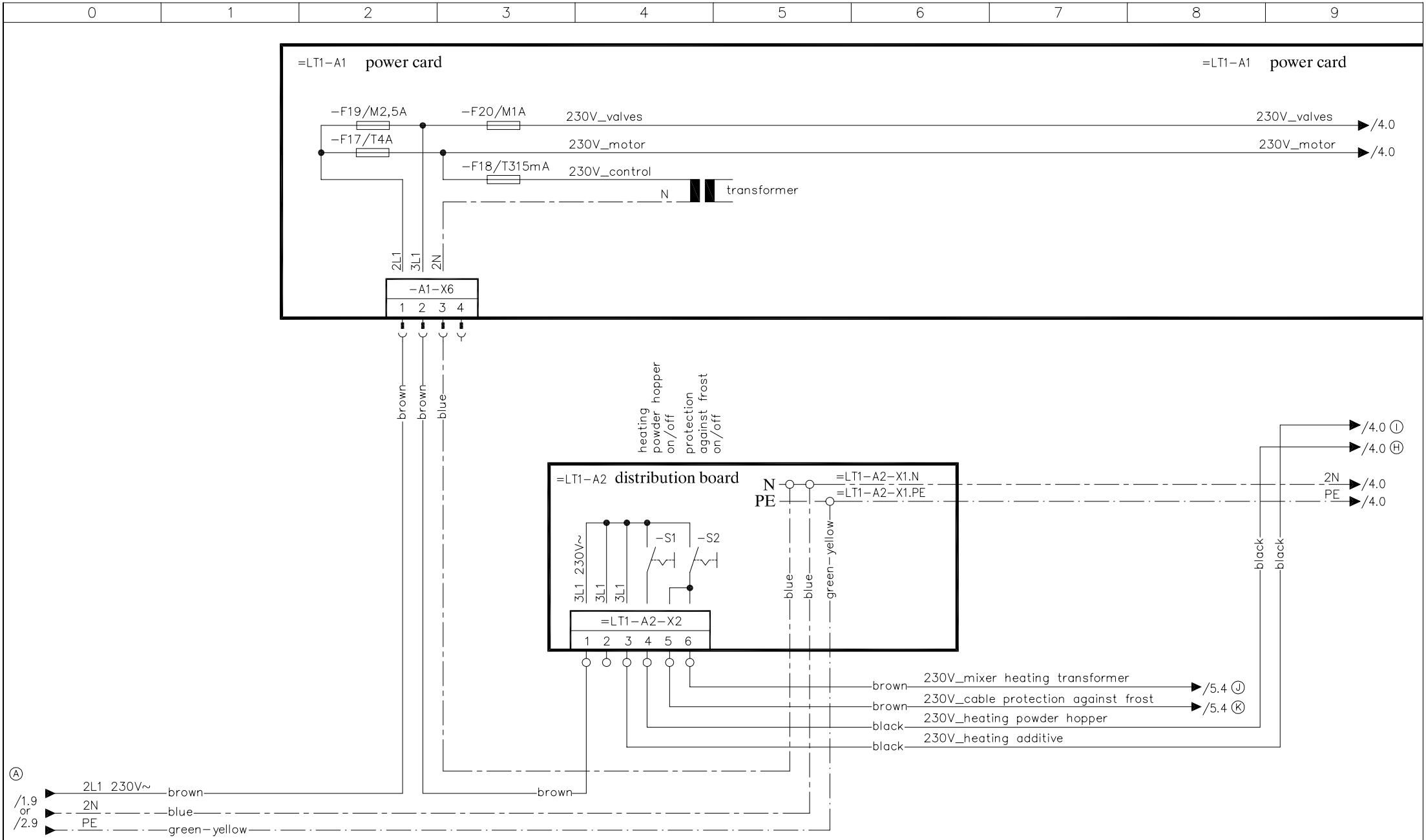
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:



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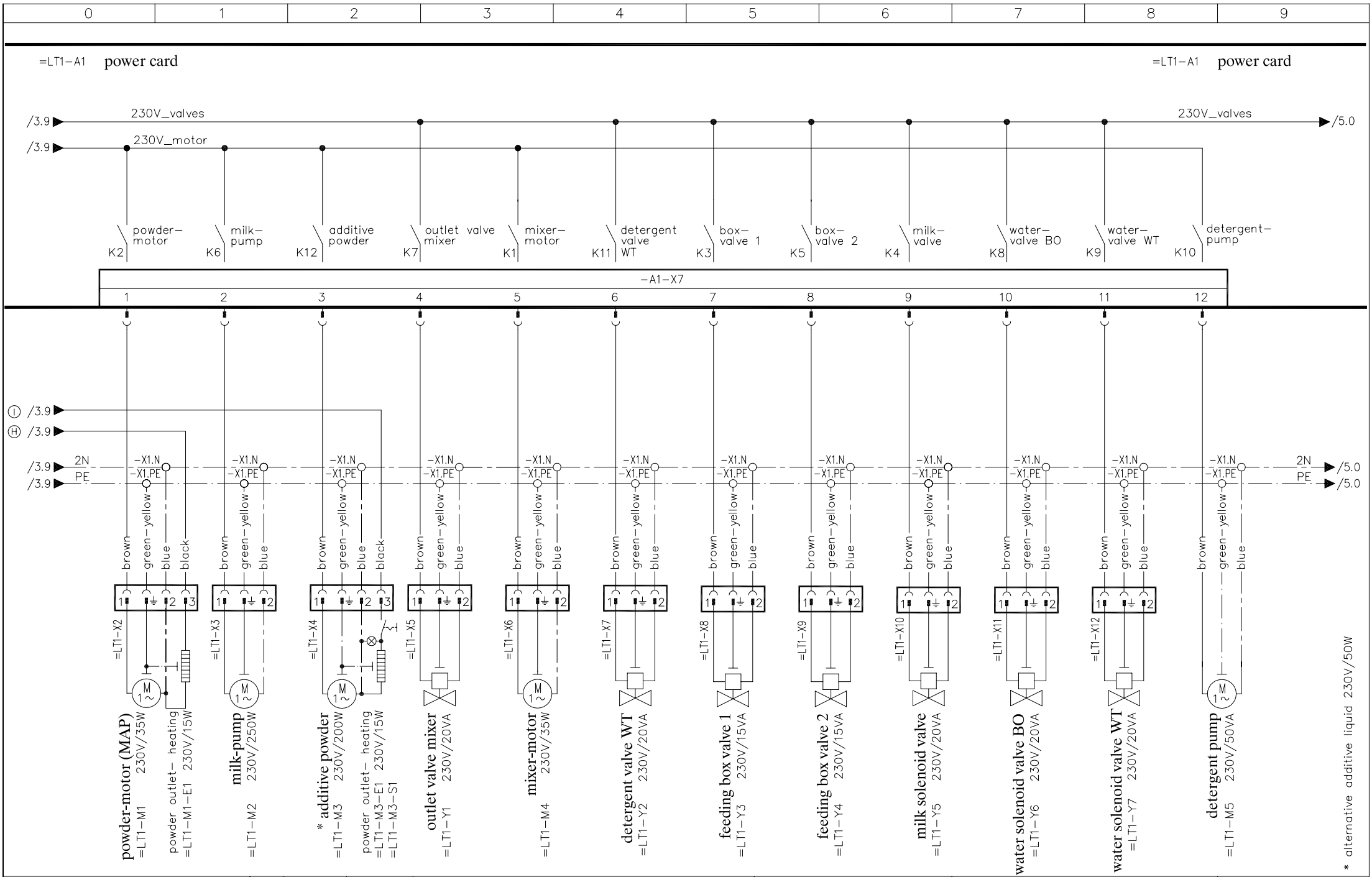
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:



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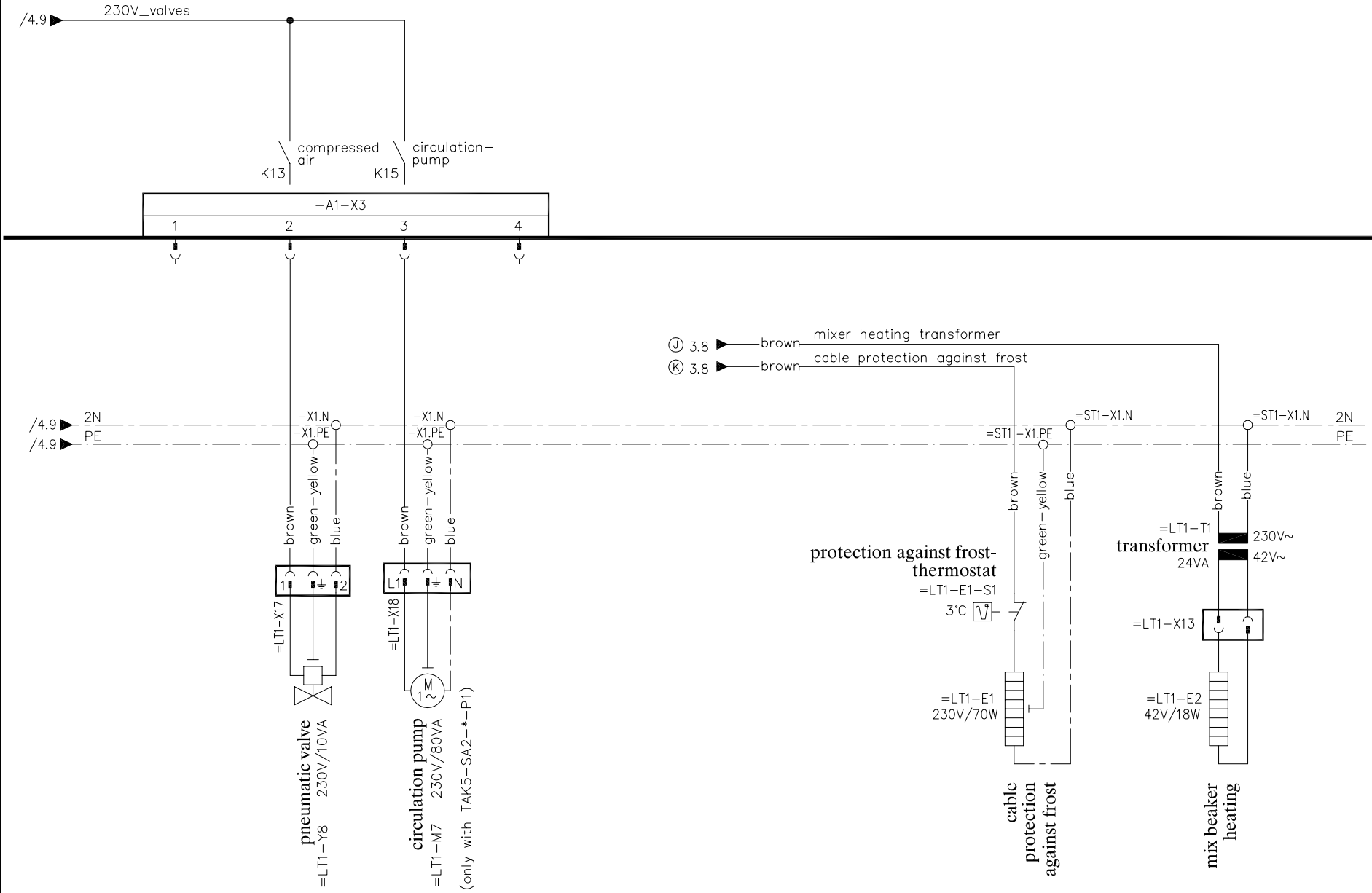
					gezeichnet	Datum 16.10.2003	von 10 Blätter
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:

=LT1-A1 power card

=LT1-A1 power card



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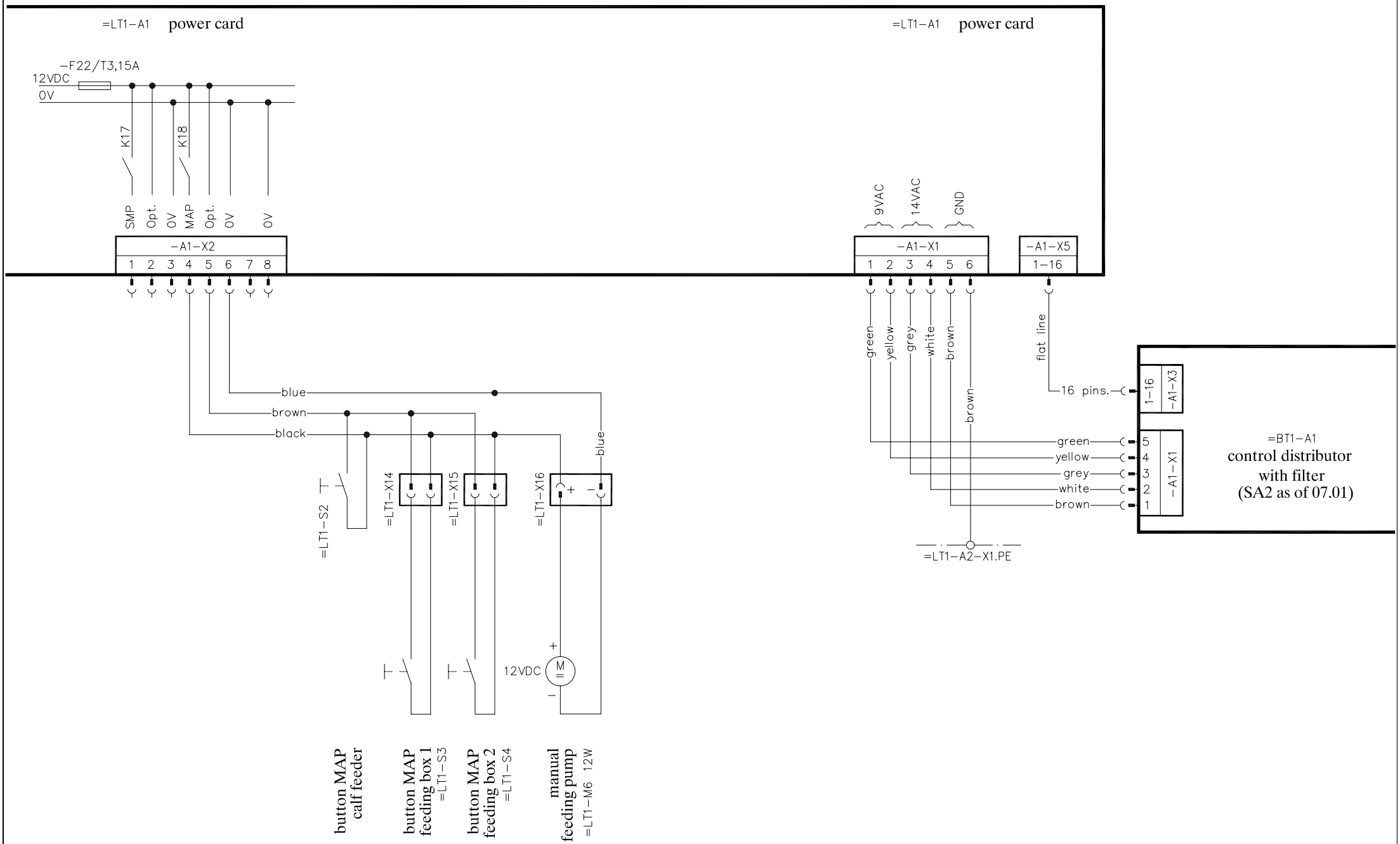
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:



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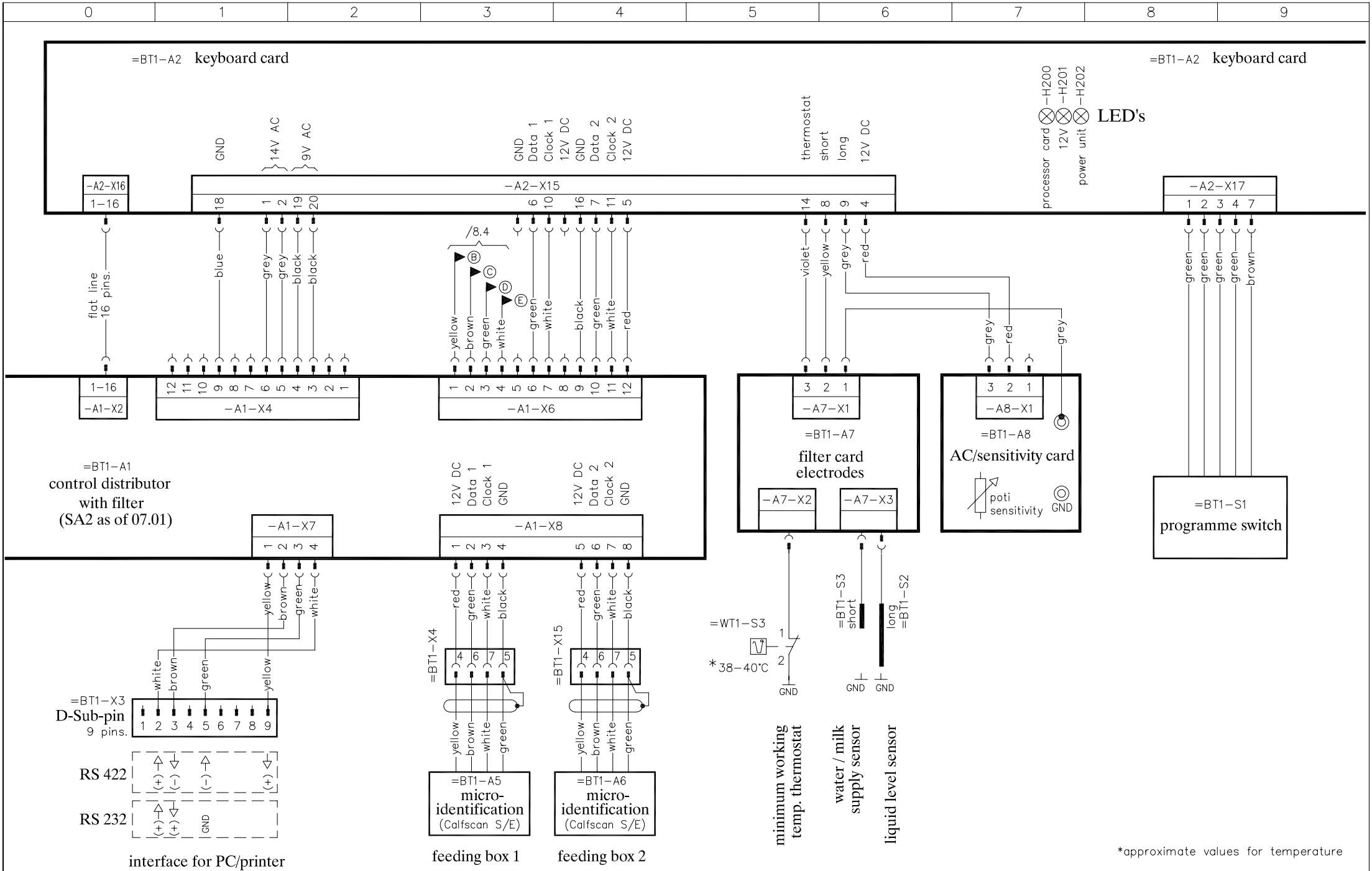
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:



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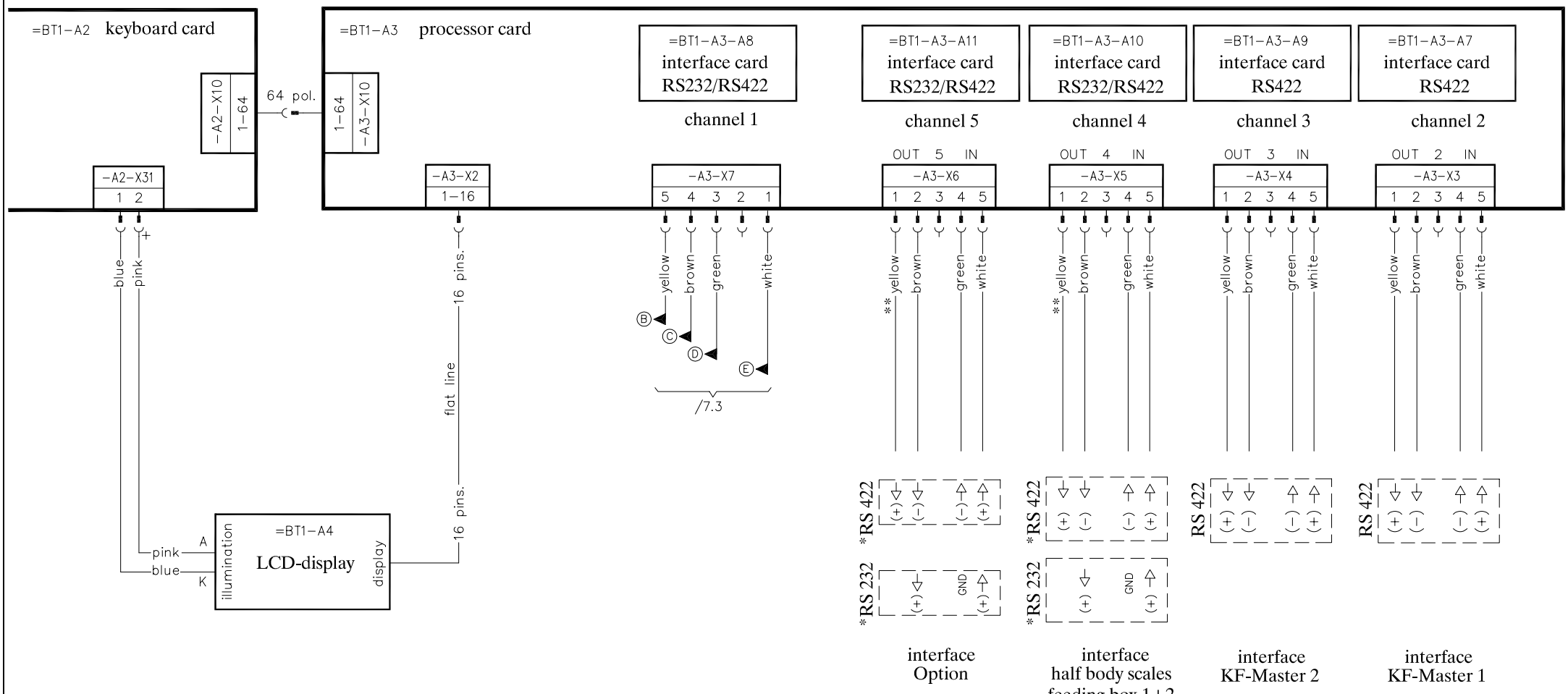
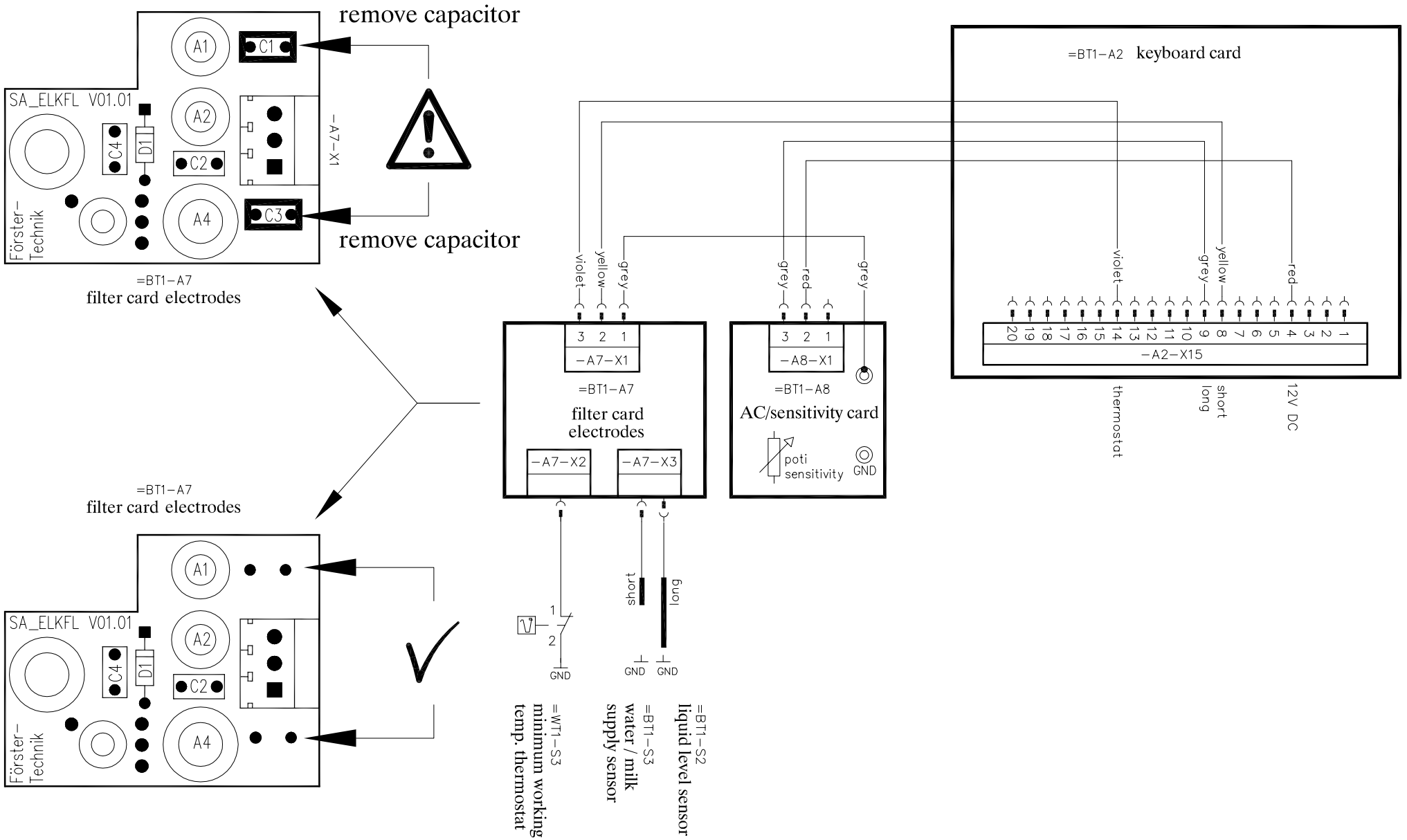

=BT1-A2 keyboard card
=BT1-A3 processor card
-A2-X10 1-64
64 pol.
1-64 -A3-X10
-A2-X31 1 2
-A3-X2 1-16
=BT1-A3-A8 interface card RS232/RS422 channel 1
=BT1-A3-A11 interface card RS232/RS422 channel 5
=BT1-A3-A10 interface card RS232/RS422 channel 4
=BT1-A3-A9 interface card RS422 channel 3
=BT1-A3-A7 interface card RS422 channel 2
-A3-X7 5 4 3 2 1
-A3-X6 OUT 5 IN 1 2 3 4 5
-A3-X5 OUT 4 IN 1 2 3 4 5
-A3-X4 OUT 3 IN 1 2 3 4 5
-A3-X3 OUT 2 IN 1 2 3 4 5
blue pink +
16 pins. flat line 16 pins.
yellow brown green white
Ⓑ Ⓒ Ⓓ Ⓔ
/7.3
** yellow brown green white
=BT1-A4 LCD-display
illumination A pink blue K
display
*RS 422 (+) (-) (-) (+)
*RS 232 (+) GND (+)
RS 422 (+) (-) (-) (+)
interface Option
interface half body scales feeding box 1+2
interface KF-Master 2
interface KF-Master 1

*interface either RS232 or RS422
** only RS422

				TAK5-SA2-XX-F1/P1 Mikro identification AC/Sensitivity card	Förster Technik GmbH	Zeichnungs-Nr. PL10244	Blatt 8
						Versions-Nr. a	
					gezeichnet Datum 16.10.2003		von 10 Blätter
Änderung	Ind.	Datum	Name		Name jr	Gültig bis:	



				AC/sensitivity card for electrodes SA2 Plus	Förster Technik GmbH	Zeichnungs–Nr. SK10138	Blatt 1
						Versions–Nr. a	
					gezeichnet	Datum 17.10.2003	von 3 Blätter
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:

				AC/sensitivity card for electrodes SA2 Plus	Förster Technik GmbH		Zeichnungs-Nr. SK10138	Blatt 2
							Versions-Nr. a	
					gezeichnet	Datum 17.10.2003		von 3 Blätter
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:	

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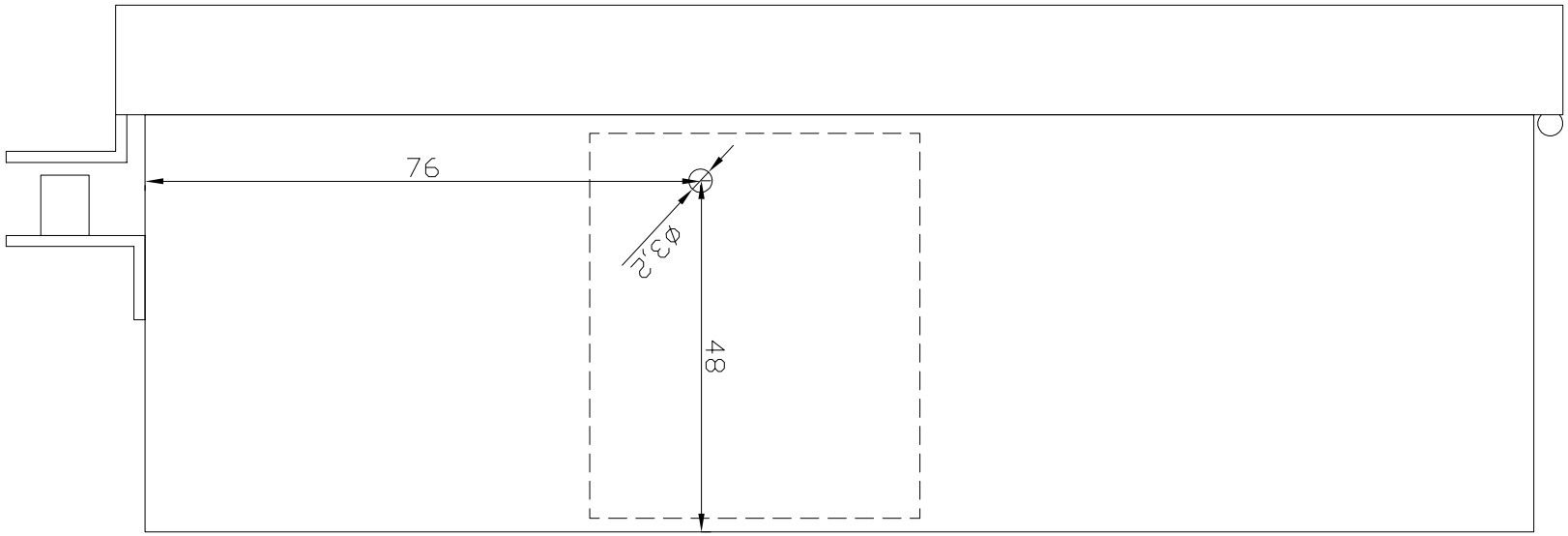
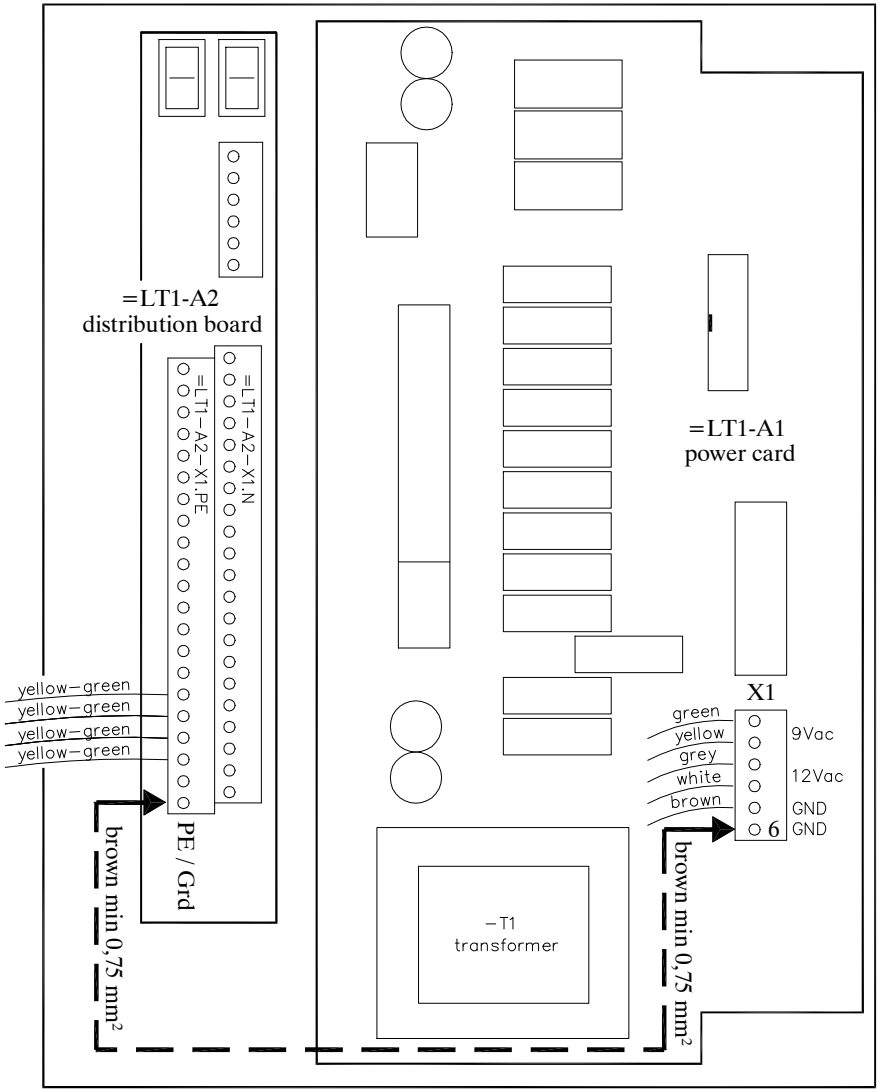
SA2 Plus Control Unit



AC/sensitivity card

				AC/sensitivity card for electrodes SA2 Plus	Förster Technik GmbH		Zeichnungs–Nr. SK10138	Blatt 3
							Versions–Nr. a	
					gezeichnet	Datum 17.10.2003		von 3 Blätter
Änderung	Ind.	Datum	Name			Name jr	Gültig bis:	

=LT1 power unit SA2 Plus



in case of problems with the electrode in the mixer jar
(the liquid in the mixer jar overflows resp. there is lack of water),
install an additional bonding point!

				Improvement of Bonding on SA2 Plus	Förster Technik GmbH		Zeichnungs–Nr. SK10071	Blatt
							Versions–Nr. a	
					gezeichnet	Datum 28.02.2002	Gültig ab: 28.02.2002	von Blätter
Änderung	Ind.	Datum	Name			Name	Gültig bis:	

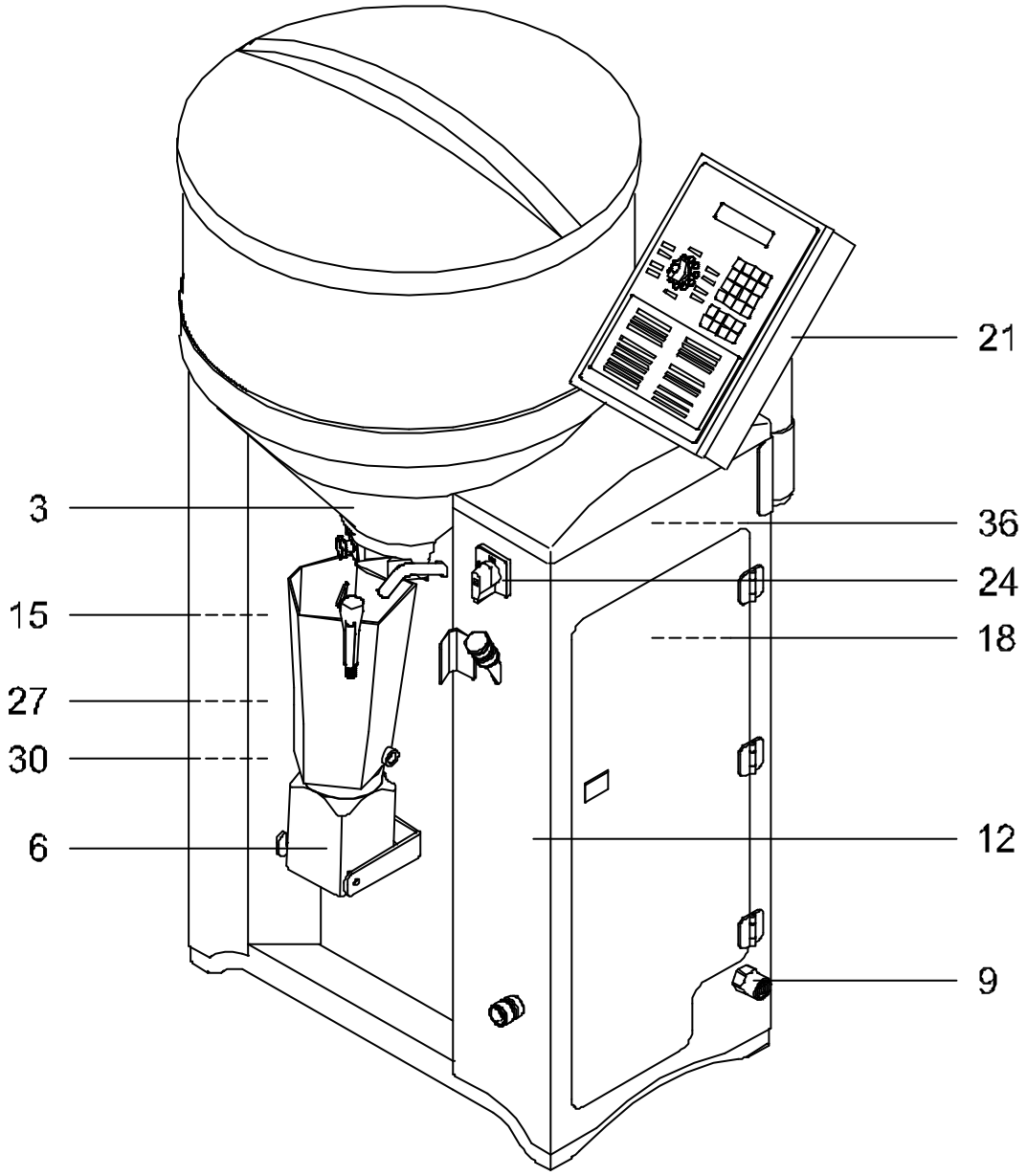
Ersatzteillisten

- spare part lists -

für Kälbertränkeautomat

for Calf Feeder

40895 / 11.01

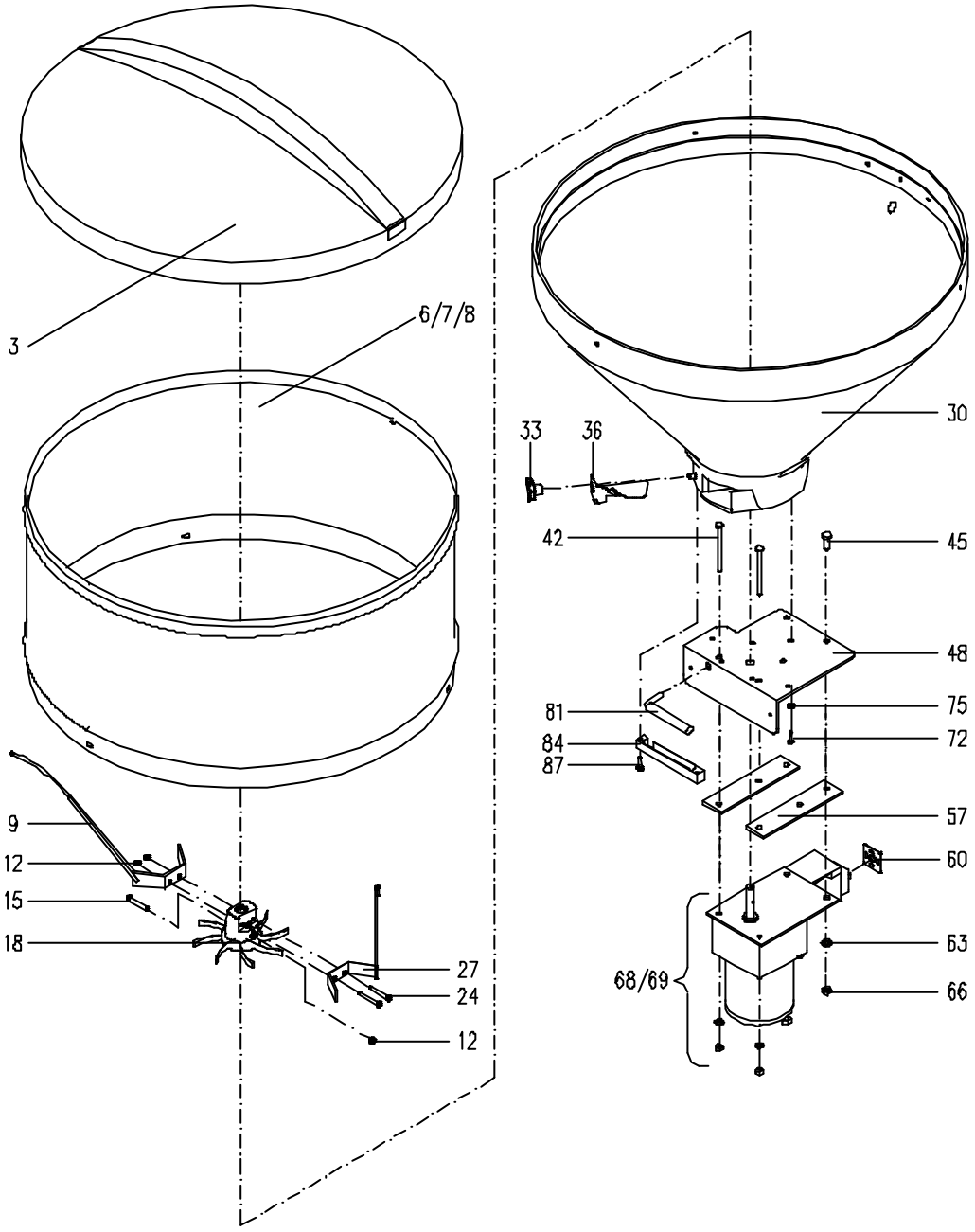


TAK5-SA2-P1

40895::40895

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
003		Pulverförderung powder supply 3/5 230V
006		Intensivmixer intensive mixer
009		Milch-Wasserversorgung TAK5 2-fach VA-Pumpe o. Steckverschr. milk and water supply TAK5, double, stainless steel pump
		Milch-Wasserversorgung TAK5/6 2-fach VA-Pumpe | ab: 01.06.01 milk-water inlet | as of: 01.06.01
012		Grundgestell 5 SA2 TAK Grundgestell 5 SA2 TAK
015		Leistungsteil power unit
018		Wärmetauscher-5 heat exchanger
021		Bedien- und Steuerungsteil operating and control unit
		Bedien- und Steuerungsteil | ab: 25.06.01 operating and control unit | as of: 25.06.01
024		Anschlussleitung connecting line
027		Absperrventil+Spülventil+manuelle Antränkp. TA5 mit Druckt. stop valve+circ.valve+manual feeding pump TA5 w.push-button
030	7163-9983-010	Spülmitteldosierpumpe TA5/TA6 detergent dosing pump SA2+/SM2+
		Zubehör - Beipack TAK/VDW 5/6 Profi included accessories for TAK/VDW 5/6 Profi

40320 / 04.01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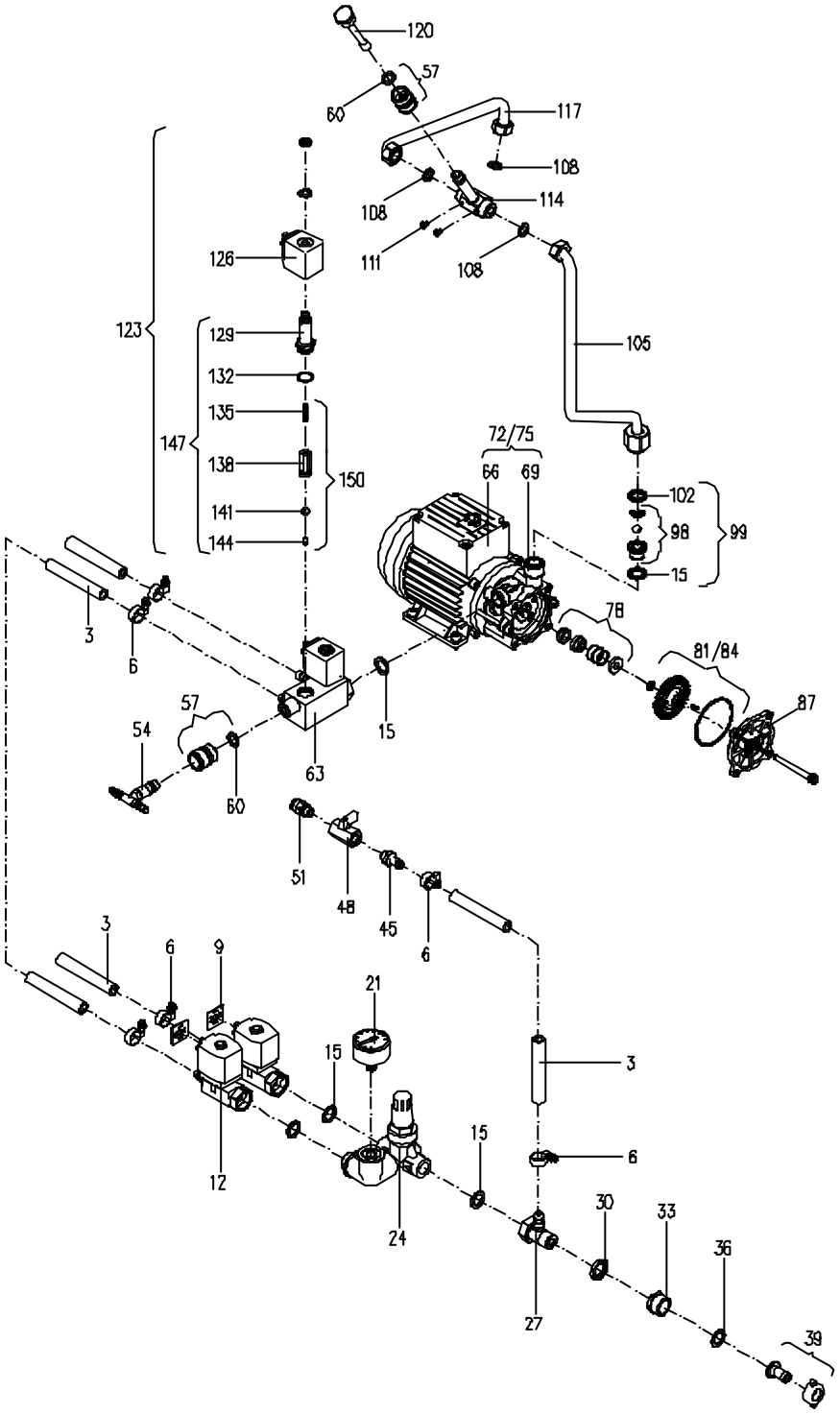
Pulverförderung
powder supply 3/5 230V

40320::40320

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
003	7721-0030-070	Pulverbehälterdeckel D:500mm powder hopper lid D:500mm
006	7721-0071-805	Trichteraufsatz H:250 D:500 VA kompl. hopper extension assembly 25cm stainless steel
007	7721-0030-043	Trichteraufsatz H:250 D:500 verzinkt kompl. hopper extension assembly 25cm galvanised
008	7163-2527-030	Trichteraufsatz H:400 D:500 VA kompl. Powder hopper top section H:400 D:500 stainless steel compl.
009	7721-0020-007	Rührflügel mit Feder 235mm | bis: 18.10.00 stirring blade with long scraper 235mm | up till: 18.10.00
	7721-0030-065	Rührflügel mit Feder 235mm und kleiner Feder | ab: 19.10.00 stirring blade with scraper 235mm and with short scraper | as of: 19.10.00
018	7721-0030-012	Federstern 10mm star wheel 10mm
027	7721-0020-008	Rührflügel mit Feder 110mm center stirring rod 110mm
030	7721-0091-582	Pulvertrichter kompl. powder hopper, compl.
033	7721-0060-117	Sternmutter M5 headed star nut M5
036	7721-0060-043	Dosierzunge Pulverförderung TA0 und TA1 deflector plate
060	7721-0090-079	Dichtung GDM 3-17 seal GDM 3-17
068	7721-0070-908	Getriebemotor O 220-240V/60Hz kompl. geared motor O 220-240V/60Hz
069	7721-0040-005	Getriebemotor O 220-240V/50Hz kompl. | ab: 17.09.00 gear motor O 220-240V/50Hz | as of: 17.09.00
081	7721-0096-658	Heizpatrone PTC IP54 heating cartridge PTC IP54
	* * * * * * * * * * * * * * * *	
		* * * * * * * *
	7721-0040-320	Pulverförderung 3/5/6 230V 50 Hz ohne Dampfsperre powder supply 3/5 230V 50Hz w.o. heating
	7721-0040-375	Pulverförderung 3/5/6 230V 50 Hz mit Dampfsperre Powder supply 3/5 230V 50Hz with heating
	7721-0040-721	Pulverförderung 3/5/6 230V 60 Hz ohne Dampfsperre powder supply 3/5 230V 60Hz without vapour screen

40352 / 01.01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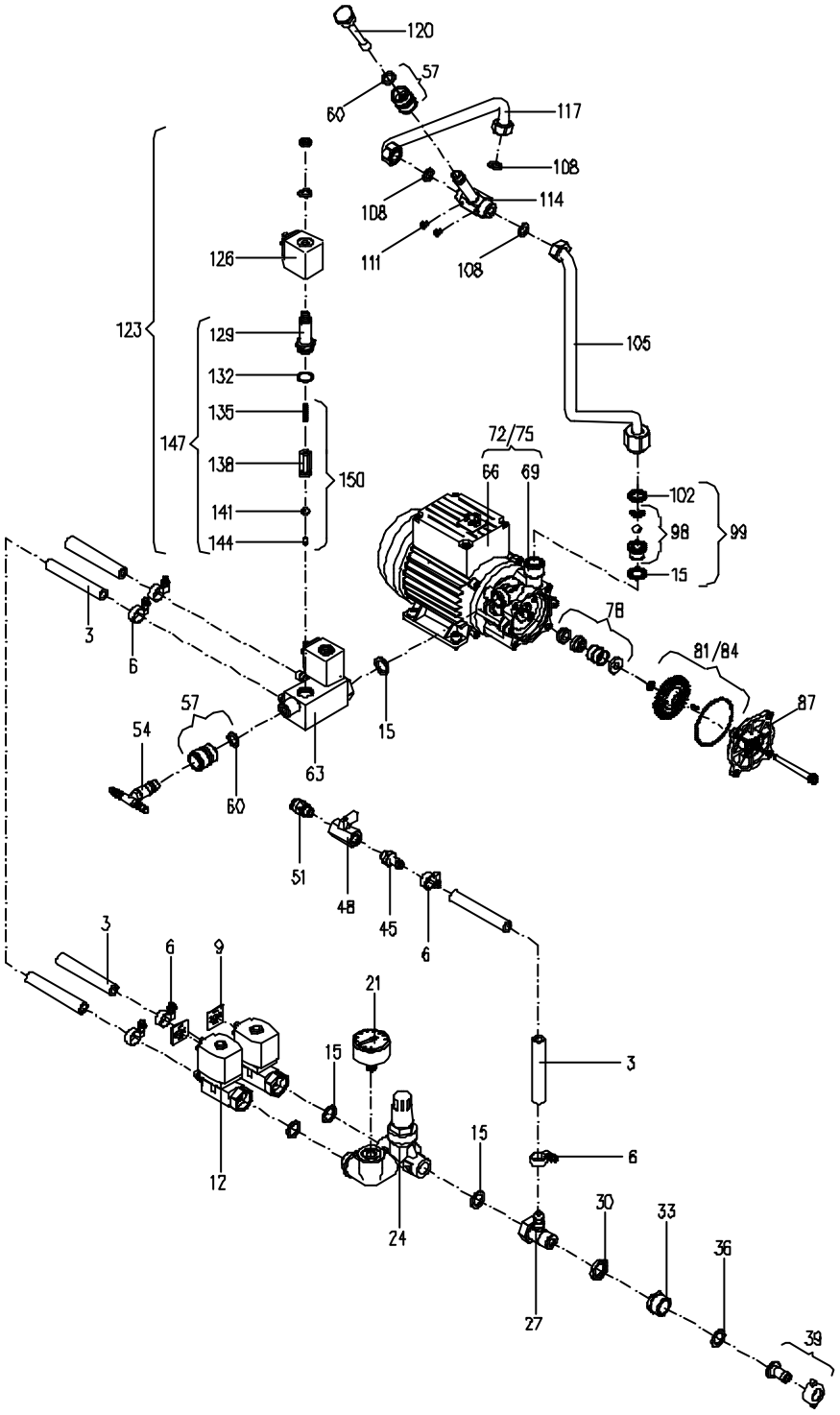
Milch-Wasserversorgung TAK5 2-fach VA-Pumpe o. Steckverschr.
milk and water supply TAK5, double, stainless steel pump

40352::40352

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
006	7721-0070-567	Schlauchschelle 1/2" 12-20 Zebra hose band clip 1/2 " 12-20 Zebra
009	7721-0090-079	Dichtung GDM 3-17 seal GDM 3-17
012	7721-0040-356	Magnetventil 230V 50Hz 4,0 mit Tülle und 3/4" Überw. solenoid valve 230V 50Hz 4,0 with nozzle and 3/4" union nut
015	7721-0080-059	Dichtung 24,0x17x2mm graphitiert washer 24/17/2 mm graphitized
021	7721-0080-009	Manometer - Anschluss hinten manometer
024	7721-0040-370	Druckminderer o. Manometer mit Winkelverteiler pressure reducer without manometer with angular connection
039	7721-0070-740	Schlauchverschraubung 2-teilig IG 3/4" Tülle 13mm hose-pipe screw-connection 1/2" two-piece
048	7721-0097-477	Kugelhahn 1/4" IG/IG ball cock 1/4" internal thread/internal thread
051	7721-0040-549	Steckverschraubung 1/4" AG; ID:7,5/10 L:30mm | ab: 01.09.00 plug-type bolting 1/4" AG; ID:7,5/10 L:30mm | as of: 01.09.00
054	7721-0099-259	Umspüladapter 2-fach kompl. für 1/2" SchlauchkupplungTA3/TA5 adapter for rinsing,double compl.for 1/2" hose coupling TA3
057	7721-0098-056	Schlauchkupplung 1/2" Einhandkupplung 1/2" hose-pipe coupling 1/2"
072	7721-0040-374	Pumpe, VA 230V 50Hz 250W mit BR-Pumpenrad o.Pumpenbl. kompl. pump,StSt 230V 50Hz 250W w.BR-pump wheel w.o.pump pl. compl.
075	7721-0040-414	Pumpe, VA 230V 60Hz 250W mit BR-Pumpenrad o.Pumpenbl. kompl. pump,StSt 230V 60Hz 250W w.BR-pump wheel w.o.pump pl. compl.
078	7721-0010-211	Wellendichtung für Milchpumpe mit Keil und Seegerring shaft seal for milk pump
081	7721-0090-305	Reparatursatz für VA-Pumpe 230V 50Hz repair set for pump VA 230V 50Hz
084	7721-0040-030	Reparatursatz für VA-Pumpe 230V 60Hz repair set for StSt pump 230V 60Hz
087	7721-0098-292	Pumpendeckel VA pump cover VA
099	7721-0096-342	Rückschlagventil für Milchpumpe -Bronzeausf.-mit Dichtungen non-return valve for milk pump - bronze-with seals
108	7721-0060-160	Dichtung 18,5x12,0x2mm hart Vulkanfiber rot washer 18/12/2mm graphitized
120	7721-0040-361	Stössel mit AG 1/2" L:88mm TA5 sw24 tappet with exterior thread 1/2" 88mm TA5 sw24
123	7721-0099-665	Ventilteil - Teileset Magnetventil 8,5 valve component - set solenoid valve 8,5
126	7721-0091-513	Ventilteil - Magnetteil 13-36 8,5 valve component - magnet unit 13-36 8,5
129	7721-0090-686	Ventilteil - Plungerrohr valve component - plunger guidance

40352 / 01.01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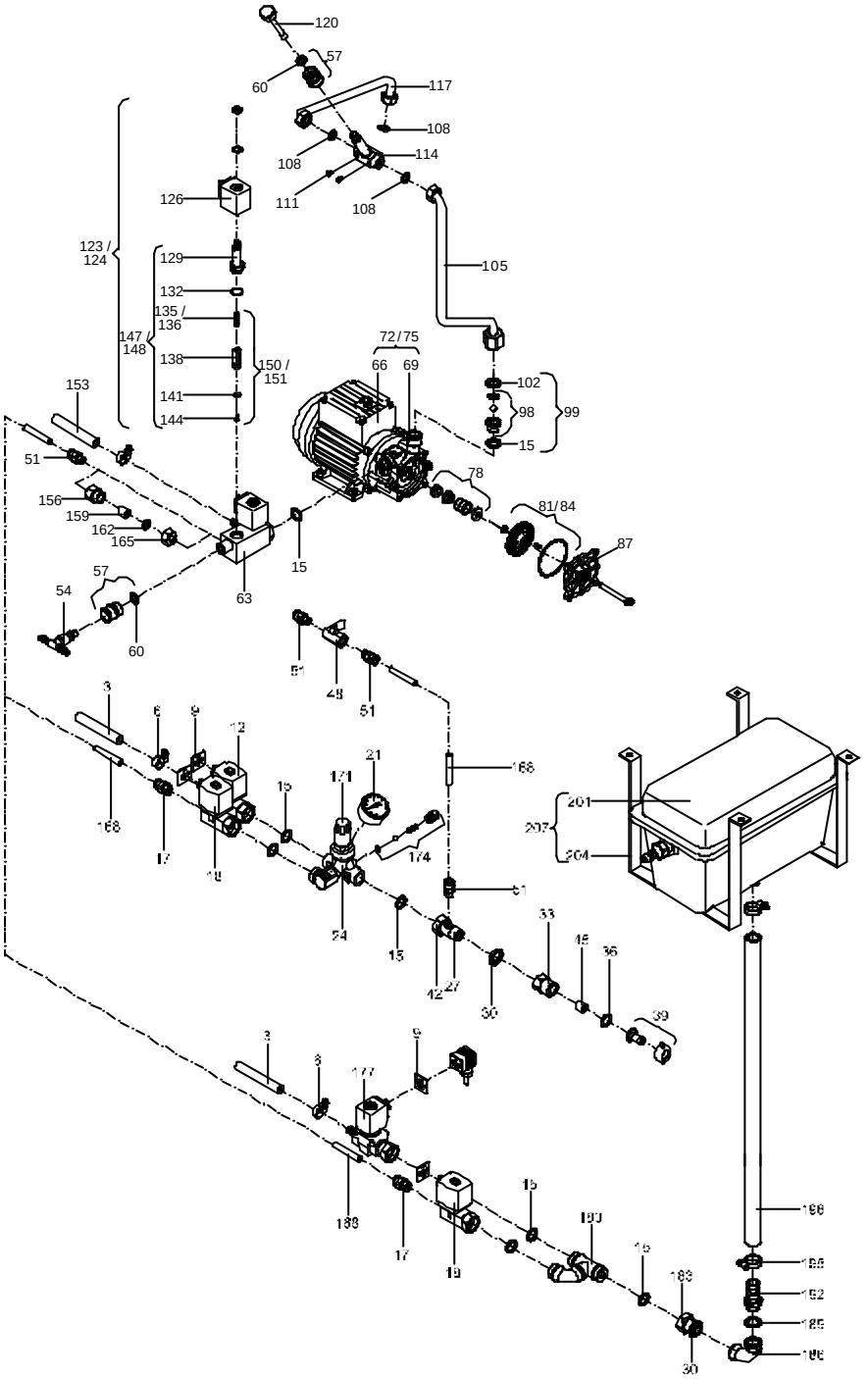
Milch-Wasserversorgung TAK5 2-fach VA-Pumpe o. Steckverschr.
milk and water supply TAK5, double, stainless steel pump

40352::40352

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
132	7721-0090-687	Ventilteil - O-Ring 18x1,5 valve component - o-ring
138	7721-0090-311	Ventilteil - Plunger mit Teller für Magnetventil /8,5/ 230V tappet for solenoid valve 280/8.5/M G 12F NCS42 230V
147	7721-0040-780	Ventilteil - Teileset Ventil 8,5 - ohne Magnetteil valve component - set valve 8,5 - without solenoid component

41325 / 09.02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Milch-Wasserversorgung TAK5/6
milk-water inlet

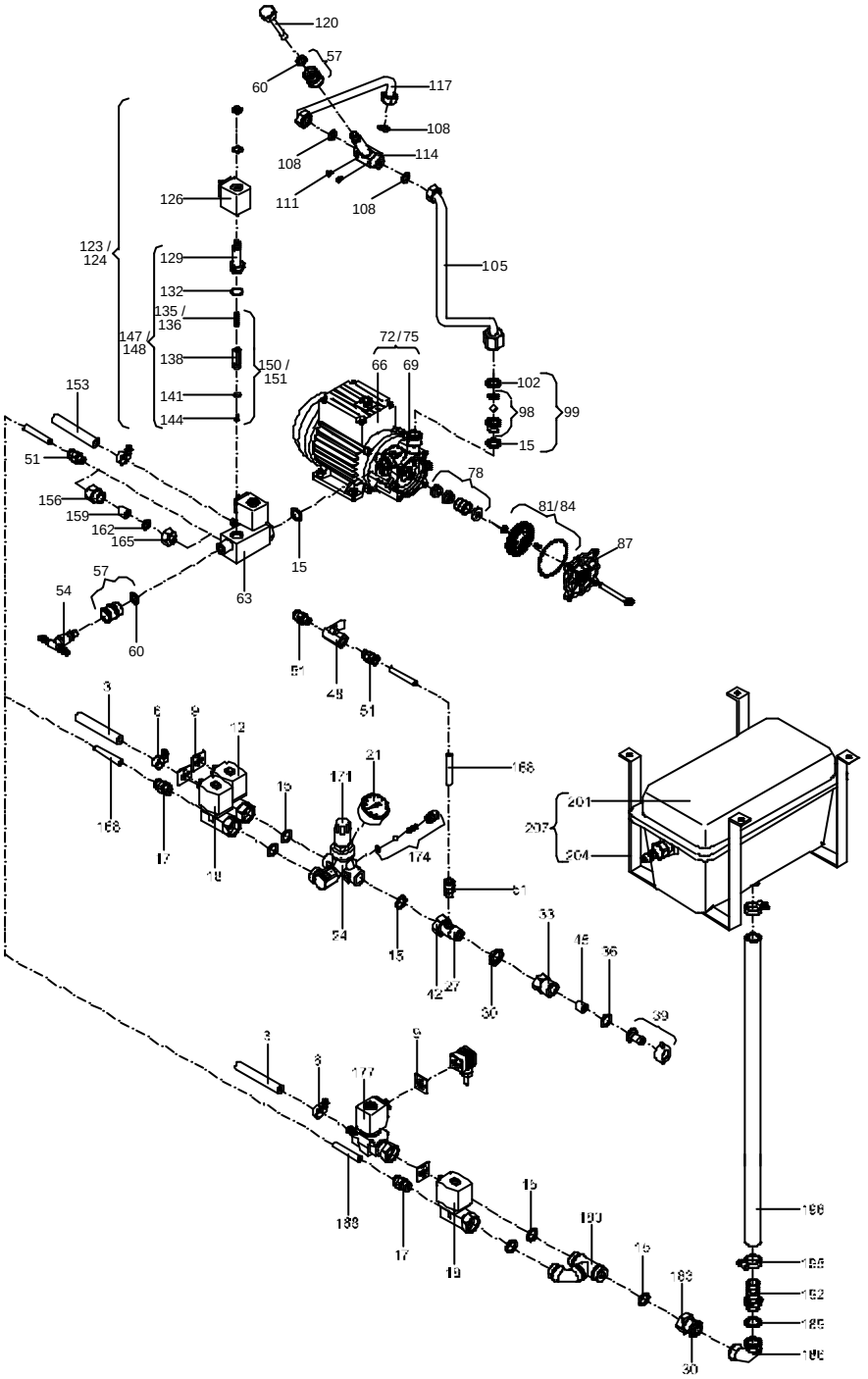
41325::41325

gültig/valid ab/as of: 01.06.2001

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
006	7721-0070-567	Schlauchschelle 1/2" 12-20 Zebra hose band clip 1/2 " 12-20 Zebra
009	7721-0090-079	Dichtung GDM 3-17 seal GDM 3-17
012	7721-0040-356	Magnetventil 230V 50Hz 4,0 mit Tülle und 3/4" Überw. solenoid valve 230V 50Hz 4,0 with nozzle and 3/4" union nut
015	7721-0080-059	Dichtung 24,0x17x2mm graphitiert washer 24/17/2 mm graphitized
018	7721-0041-334	Magnetventil 230V 50Hz 4,0 mit IG3/8" und 3/4" Überw. solenoid valve 230V 50Hz 4,0 with IG3/8" and 3/4" union nut
021	7721-0080-009	Manometer - Anschluss hinten manometer
024	7721-0041-333	Druckminderer o. Manometer mit Anschlussstück pressure reducer or manometer with connecting piece
042	7721-0071-477	Überwurfmutter 3/4" L:14mm ID:21,7mm sw30 swivel nut 3/4 " lgth:14mm sw30
045	7721-0041-060	Rückschlagventil-Rückflussverhinderer D:15mm m. Feder 0,4bar nonreturn valve D:15mm
048	7721-0097-477	Kugelhahn 1/4" IG/IG ball cock 1/4" internal thread/internal thread
051	7721-0040-549	Steckverschraubung 1/4" AG; ID:7,5/10 L:30mm plug-type bolting 1/4" AG; ID:7,5/10 L:30mm
054	7721-0099-259	Umspüladapter 2-fach kompl. für 1/2" SchlauchkupplungTA3/TA5 adapter for rinsing,double compl.for 1/2" hose coupling TA3
057	7721-0098-056	Schlauchkupplung 1/2" Einhandkupplung 1/2" hose-pipe coupling 1/2"
072	7721-0040-374	Pumpe, VA 230V 50Hz 250W mit BR-Pumpenrad o.Pumpenbl. kompl. pump,StSt 230V 50Hz 250W w.BR-pump wheel w.o.pump pl. compl.
075	7721-0040-414	Pumpe, VA 230V 60Hz 250W mit BR-Pumpenrad o.Pumpenbl. kompl. pump,StSt 230V 60Hz 250W w.BR-pump wheel w.o.pump pl. compl.
078	7721-0010-211	Wellendichtung für Milchpumpe mit Keil und Seegerring shaft seal for milk pump
081	7721-0090-305	Reparatursatz für VA-Pumpe 230V 50Hz repair set for pump VA 230V 50Hz
084	7721-0040-030	Reparatursatz für VA-Pumpe 230V 60Hz repair set for StSt pump 230V 60Hz
087	7721-0098-292	Pumpendeckel VA pump cover VA
099	7721-0096-342	Rückschlagventil für Milchpumpe -Bronzeausf.-mit Dichtungen non-return valve for milk pump - bronze-with seals
108	7721-0060-160	Dichtung 18,5x12,0x2mm hart Vulkanfiber rot washer 18/12/2mm graphitized
120	7721-0040-361	Stössel mit AG 1/2" L:88mm TA5 sw24 tappet with exterior thread 1/2" 88mm TA5 sw24
123	7721-0099-665	Ventilteil - Teileset Magnetventil 8,5 valve component - set solenoid valve 8,5

41325 / 09.02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Milch-Wasserversorgung TAK5/6
milk-water inlet

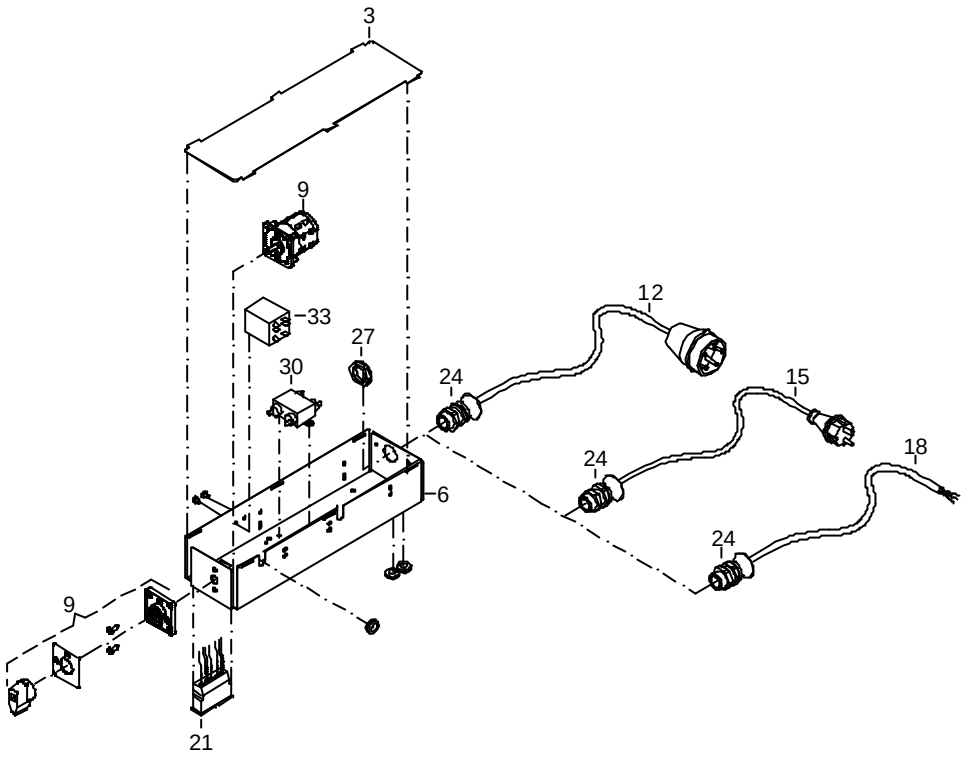
41325::41325

gültig/valid ab/as of: 01.06.2001

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
126	7721-0091-513	Ventilteil - Magnetteil 13-36 8,5 valve component - magnet unit 13-36 8,5
129	7721-0090-686	Ventilteil - Plungerrohr valve component - plunger guidance
132	7721-0090-687	Ventilteil - O-Ring 18x1,5 valve component - o-ring
136	7721-0097-680	Ventilteil - Feder | bis: 18.11.02 valve part - spring | up till: 18.11.02
138	7721-0090-311	Ventilteil - Plunger mit Teller für Magnetventil /8,5/ 230V tappet for solenoid valve 280/8.5/M G 12F NCS42 230V
147	7721-0040-780	Ventilteil - Teileset Ventil 8,5 - ohne Magnetteil valve component - set valve 8,5 - without solenoid component
153	7721-0099-434	Schlauch 8,0x3,0mm TPE trüb | bis: 05.11.02 hose 8,0x3,0mm TPE | up till: 05.11.02
159	7721-0041-060	Rückschlagventil-Rückflussverhinderer D:15mm m. Feder 0,4bar nonreturn valve D:15mm
162	7721-0060-160	Dichtung 18,5x12,0x2mm hart Vulkanfiber rot washer 18/12/2mm graphitized
171	7721-0096-434	Druckminderer 1/2" 1,5bar pressure reducer 1/2"
183	7721-0060-099	Verschraubung mit Überwurfmutter und Mutter screw coupling with union nut and nut
189	7721-0060-161	Dichtung 27,0x21x2mm graphitiert washer 27/21/2mm graphitized
201	7721-0080-037	Schwimmertank kompl. mit KS-Schwimmerventil und Deckel float pot complete w. KS-float valve and lid
207	7721-0096-249	Schwimmertank 355x190x155 kompl. mit Halterung water tank compl.
	7721-0042-479	Sieb für Milchzulauf Sieb für Milchzulauf

40813 / 01.02



Anschlussleitung
connecting line

40813::40813

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
009	7721-0090-411	Hauptschalter M221 20A main switch M221 20A
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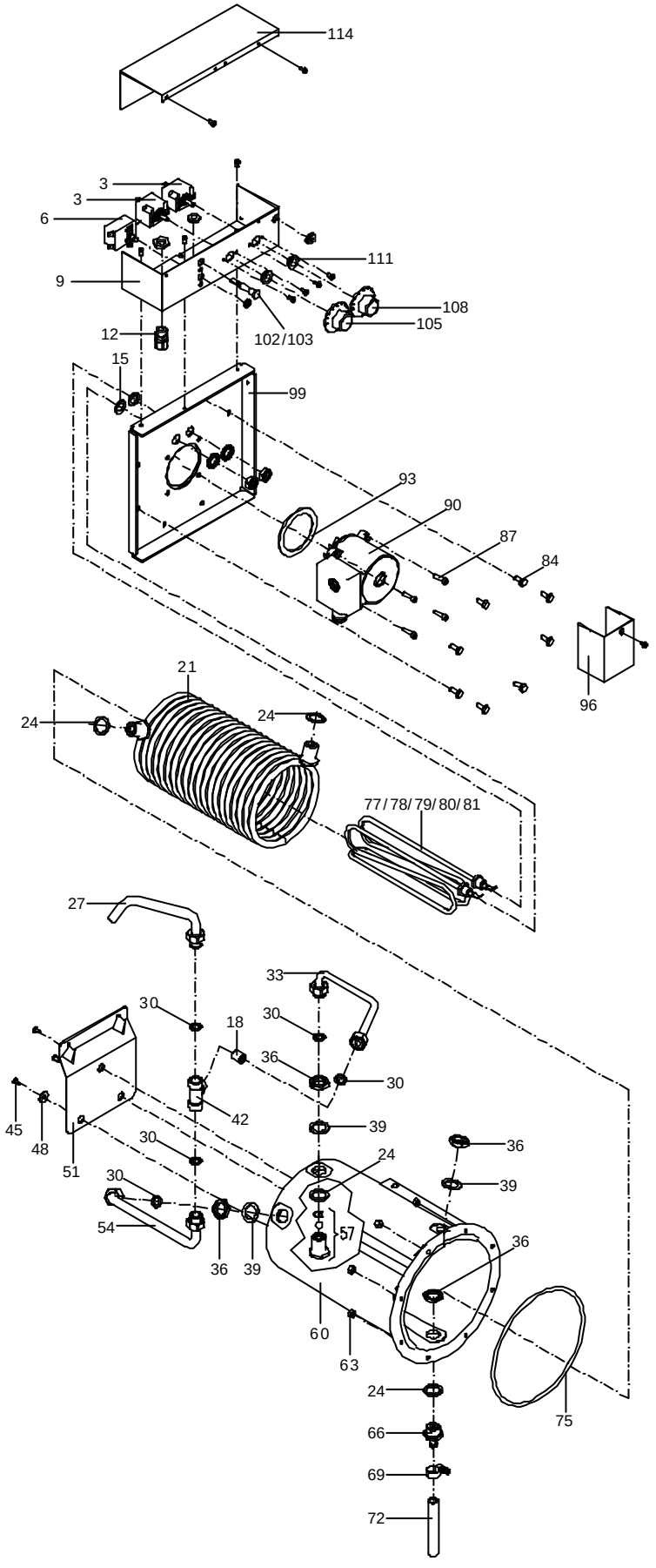
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Wärmetauscher-5
heat exchanger

40955::40954

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. / *Item*	Teile-Nr. / *Part-No.:*	B e z e i c h n u n g / *D e s c r i p t i o n*
003	7721-0060-022	Thermostat mit Spiralfühler (Wechsler) thermostat (two-way connection)
006	7721-0090-008	Thermostat Überhitzungsschutz 1-polig thermostat for overheat limitation
015	7721-0090-365	Dichtung 22,0x14,2 1,5mm stark Vulkanfiber rot, hart volcanic-fibre washer,hard,red 1,5mm thick 22x14,2mm diamet.
018	7721-0041-060	Rückschlagventil-Rückflussverhinderer D:15mm m. Feder 0,4bar | ab: 01.04.01 nonreturn valve D:15mm | as of: 01.04.01
021	7721-0098-465	Rohrwendel TAK1 mit Anschluss und Dichtungen; Kunststoffb. coiled tubing TAK1 with connexion; for plastic recipient
024	7721-0060-161	Dichtung 27,0x21x2mm graphitiert washer 27/21/2mm graphitized
030	7721-0060-160	Dichtung 18,5x12,0x2mm hart Vulkanfiber rot washer 18/12/2mm graphitized
057	7721-0098-464	Rückschlagventil Auslauf WT Wasser flap valve flowing out hole WT water
060	7721-0098-524	WT1-Kunststoffbehälter mit Dichtung heat-exchanger - tank
069	7721-0070-567	Schlauchschelle 1/2" 12-20 Zebra hose band clip 1/2 " 12-20 Zebra
075	7721-0099-146	Dichtung Stärke D: 5mm für Kunststoff-WT-Behälter silicone seal thickness D: 5mm for plastic box HE
077	7721-0071-838	Heizkörper 5,0KW 380-400V heating element 5.0KW 380-400V
078	7721-0090-006	Heizkörper 3,8KW 380-400V heating element 3.8KW 380-400V
079	7721-0090-004	Heizkörper 3,2KW 230V heating element 3.2KW 230V
080	7721-0096-496	Heizkörper 4,0KW 230V heating element 4.0KW 230V
081	7721-0098-048	Heizkörper 2,8KW/230V Heating 2,8KW/230V
090	7721-0040-429	Umwälzpumpe 230V/50Hz 15-60 TA5 circulation pump 230V/50Hz 15-60 TA5
093	7721-0098-115	Dichtung UPS15 washer UPS15
102	7721-0090-091	Kontrollampe gelb 400V D:13mm pilot lamp yellow 400V
103	7721-0090-089	Kontrollampe gelb 230V D:13mm pilot lamp yellow 230V
105	7721-0090-014	Drehknopf / Heizungsthermostat (schwarz mit rot) knob for heating thermostat (black + red)
108	7721-0090-017	Drehknopf / Mindestbetriebstemperatur (schwarz mit grün) knob for MWT, black + green

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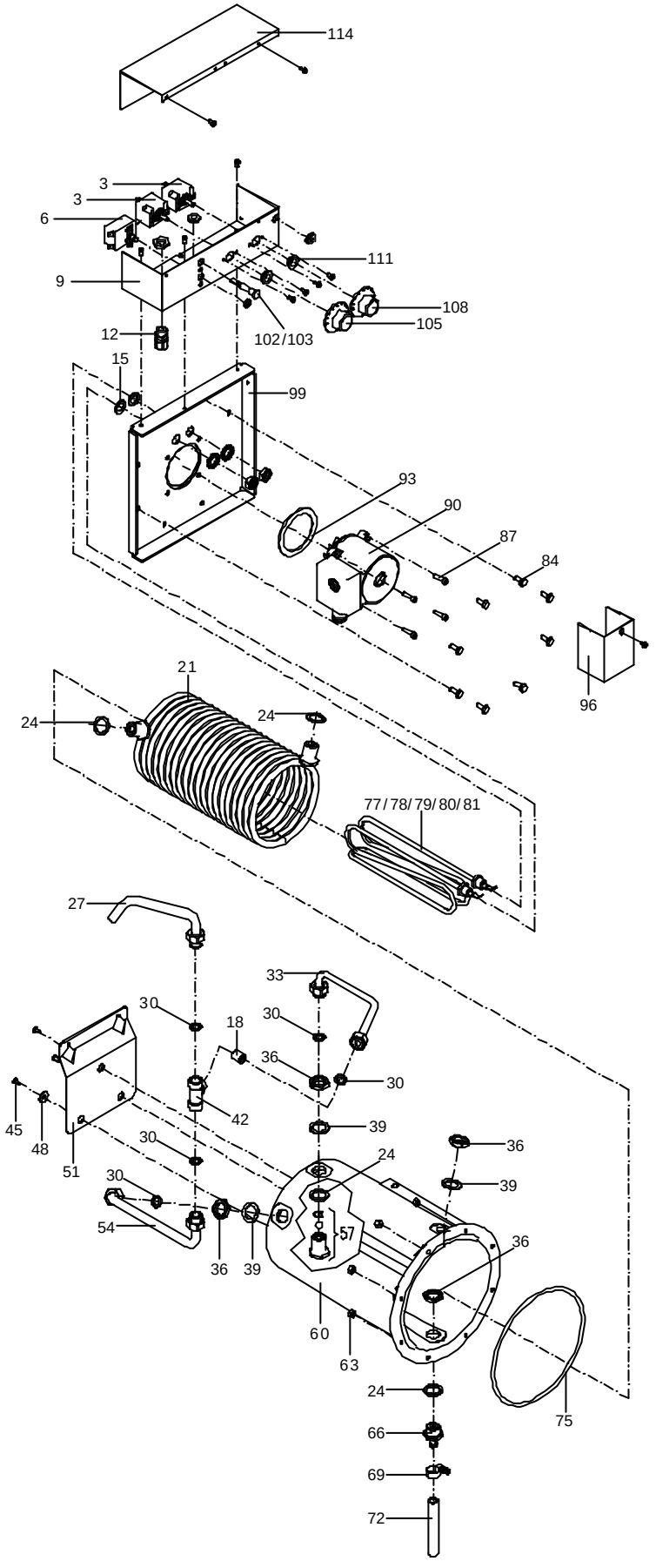
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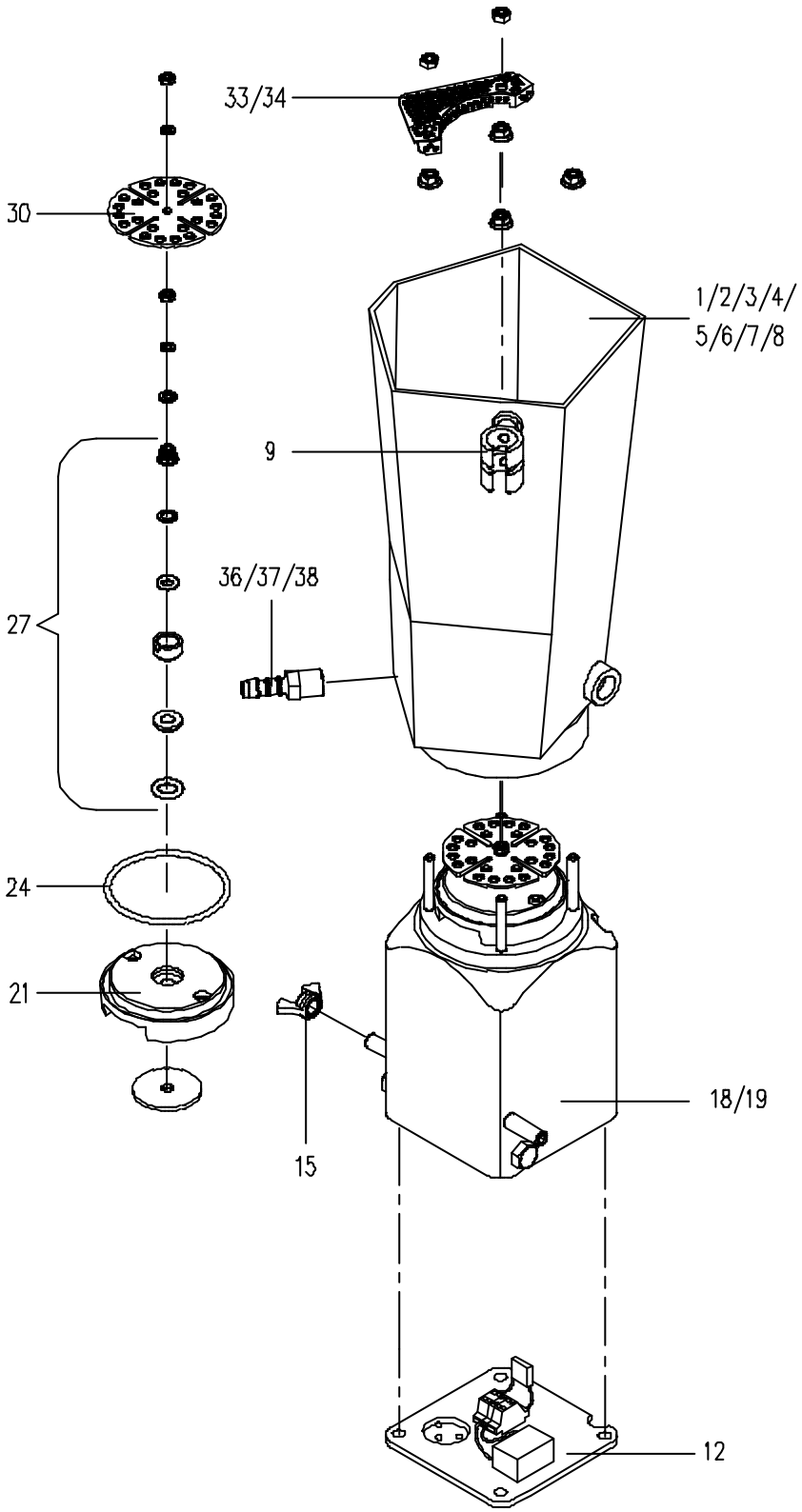
Wärmetauscher-5
heat exchanger

40955::40954

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos.	Teile-Nr.	B e z e i c h n u n g
Item	*Part-No.:*	*D e s c r i p t i o n*
	7721-0040-946	Wärmetauscher-5 P1 2,8KW 240V SA CSA/UL
		heat exchanger-5 P1 2,8KW 240V SA CSA/UL
	7721-0040-949	Wärmetauscher-5 P1 3,0KW 200V SA
		heat exchanger-5 P1 3,0KW 200V SA
	7721-0040-950	Wärmetauscher-5 P1 3,2KW 230V SA
		heat exchanger-5 P1 3,2KW 230V SA
	7721-0040-953	Wärmetauscher-5 P1 3,8KW 400V SA
		heat exchanger-5 P1 3,8KW 400V SA
	7721-0040-954	Wärmetauscher-5 P1 5,0KW 400V SA
		heat exchanger-5 P1 5,0KW 400V SA

96501 / 10.00



Intensivmixer
intensive mixer

96501::96501

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. / *Item*	Teile-Nr. / *Part-No.:*	B e z e i c h n u n g / *D e s c r i p t i o n*
001	7721-0040-646	Mixerglas mit 1-2 Tüllen und Elektrodenklemme TA5 SA mixer glass with 1-2 nozzles and electrode binder TA5 SA
002	7721-0098-079	Mixerglas mit 1-2 Tüllen beheizt 230V/42V/24VA mixer glass, heating
005	7721-0097-075	Mixerglas mit 1-2 Tüllen und Elektrodenklemme mixer glass, with 2 nozzles and sensor clip with screw
009	7721-0030-055	Elektrodenklemme mit Schraube sensor clip with screw
012	7721-0097-272	Mixermotorabdeckung mit Verdrahtung und Entstörung f. Intens | bis: 30.09.00 covering for mixer motor with wiring | up till: 30.09.00
015	7721-0070-746	Flügelmutter M8 Durchgangsgewinde verz. wing nut M8, span 68mm
018	7721-0097-080	Mixermotor 230V/50-60Hz kompl. mixer motor assembly - N 230V/50Hz
021	7721-0071-741	Stützelement für Mixer support element for long-life mixer
024	7721-0080-019	O-Ring 58,0x3,0mm NBR 50 Shore (Mixermotor) 0-ring 58x3mm for mixer motor
027	7721-0080-020	Gleitringdichtung kompl. sliding ring seal assembly
030	7721-0060-014	Quirl für Intensivmixer (D:58mm) twirling disc for intensive mixer
037	7721-0071-010	Schlauchtülle 1/4" GES 10 R hose-pipe nozzle 1/4" GES 10 R
038	7721-0080-017	Schlauchtülle 1/4" GES 8 R hose-pipe nozzle 1/4" GES 8 R
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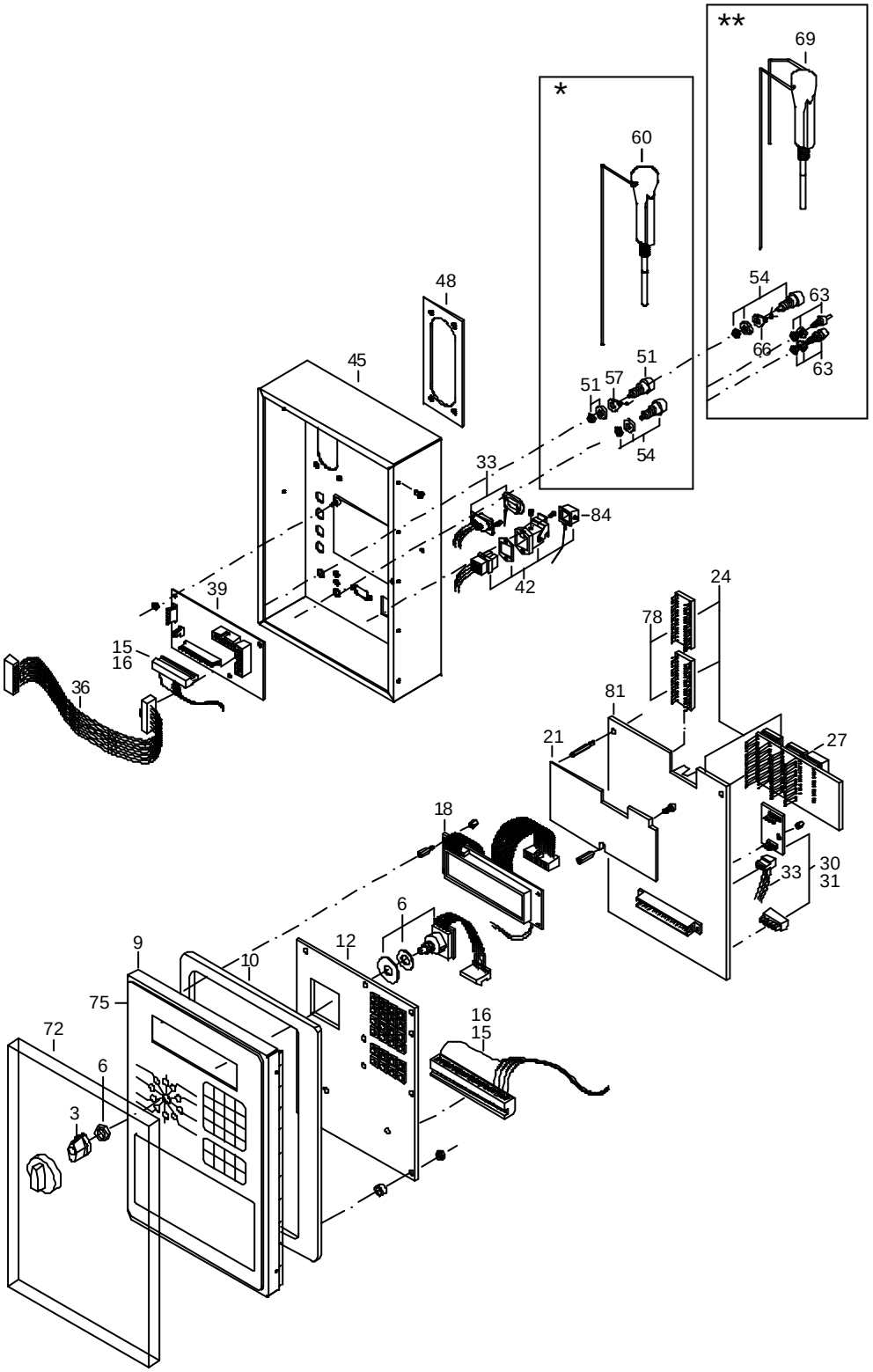
98453 / 01.00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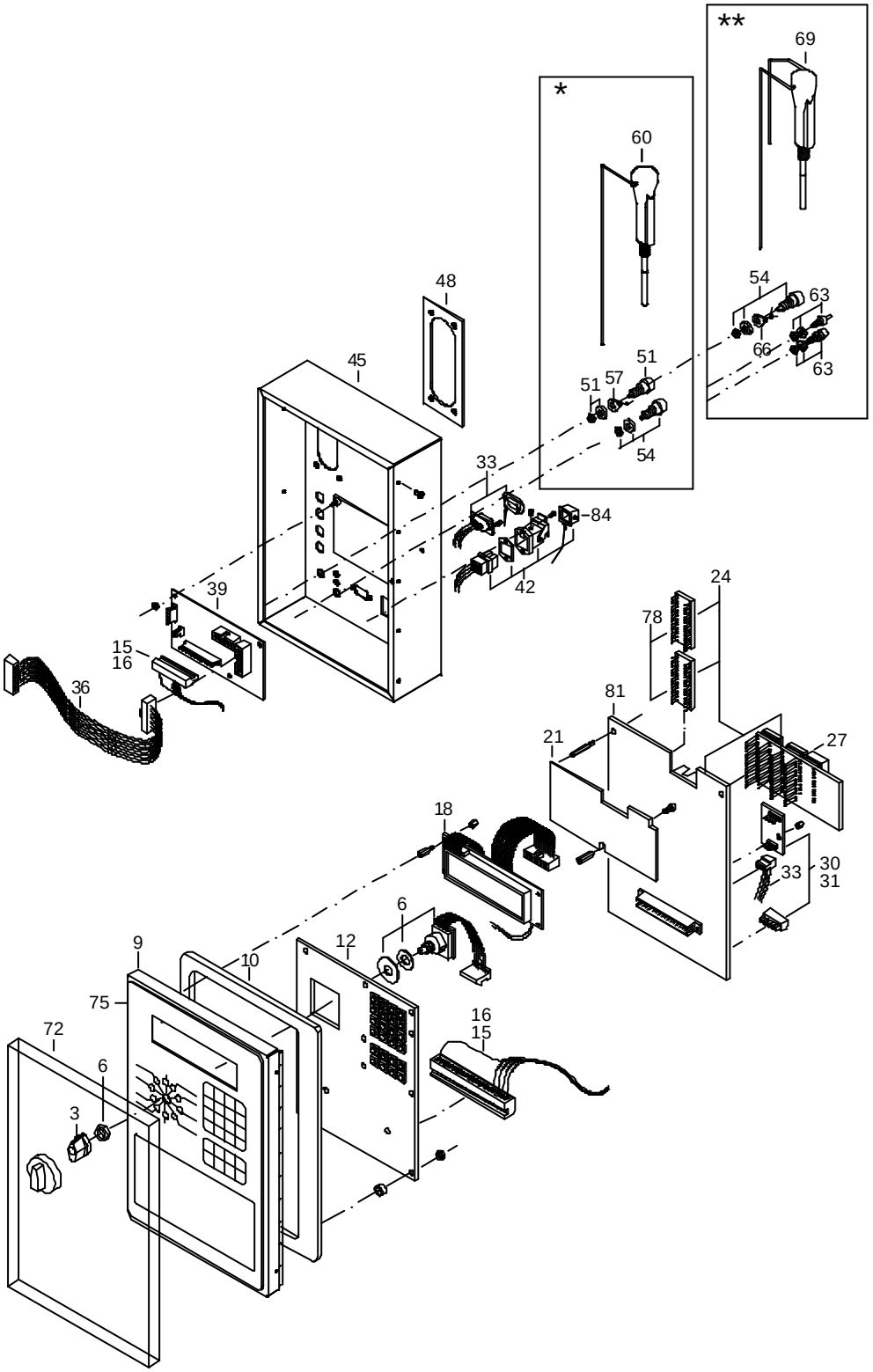
Bedien- und Steuerungsteil
operating and control unit

98453::40436

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
003	7721-0090-020	Drehschalterknopf switch button
006	7721-0060-182	Drehschalter mit Anschlusskabel (SA) rotary switch with cable for SA
012	7721-0040-182	Platine Tastaturkarte (SA2+) board circuit card for keyboard (SA2+)
015	7721-0091-248	Kabelbaum Bedienteil TAK SA2 A cable harness operating unit TAK SA2 A
016	7721-0091-249	Kabelbaum Bedienteil TAP SA2 A cable harness operating unit TAP SA2 A
018	7721-0040-198	Display LCD SA2+ 2x20/ 123x23mm display LCD SA2+ 2x20/ 123x23mm
024	7721-0097-064	Platine Rechnerk.f.SA2 099 m.Speicherk.u. Progr-Satz circuit card - cpu SA2 + memory + programme chip
027	7721-0091-193	Platine Speicherkarte (SA2) circuit card for memory (SA2)
030	7721-0091-417	Schnittstellenkarte RS422 mit Zubehör RS422 Interface card with accessory
031	7721-0091-416	Schnittstellenkarte RS232 mit Zubehör RS232 interface card with accessory
036	7721-0071-412	Flachbandkabel Bedienteil SA/ FE flat strip cable (operating device)
039	7721-0041-398	Platine Steuerungsverteiler m.Filter (SA2 ab 07.01) board control distributor with filter (SA2 as of 07.01)
042	7721-0060-206	Steckdose für Antenne SA ME mit Drähten antenna socket for SA
051	7721-0071-428	Buchse 3mm BU 3400 grün mit Isolierring und Mutter socket 3mm BU 3400 green with insulating ferrule and nut
054	7721-0070-480	Buchse 4mm BU 4400S schwarz Isolierring u. 2 Muttern socket, 4mm BU 4400S black, insulating ring and 2 nuts
057	7721-0098-546	Entstörsatz für Elektrode Pulver/MTB screening for electrode Powder/MTB
060	7721-0060-093	Elektrode SA/SA2-PLUS; FE Baby Milk - 1700/mit Stecker sensor for SA
069	7721-0040-613	Doppelelektrode SA2Plus - 1700/mit Stecker double electrode SA2 Plus - 1700/with plug
072	7721-0070-242	Bedienfeldabdeckung SA cover for control unit / SA
075	7721-0040-263	Folie-Tastatur SA2 Plus Neutral DE foil for keyboard SA2 Plus Neutral DE
078	7721-0040-333	Programmsatz f.SA2+ program set for Sa2+
081	7721-0091-192	Platine Rechnerk.f.SA2 099 o.Speicherk.o. Progr-Satz circuit card for cpu SA2 (w/o Programme chip, w/o memory)
084	7721-0070-220	Schutzdeckel B H-A 3DB mit Dichtung cover B H-A 3DB with sliding ring

98453 / 01.00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Bedien- und Steuerungsteil
operating and control unit

98453::40436

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos.	Teile-Nr.	B e z e i c h n u n g
Item	*Part-No.:*	*D e s c r i p t i o n*

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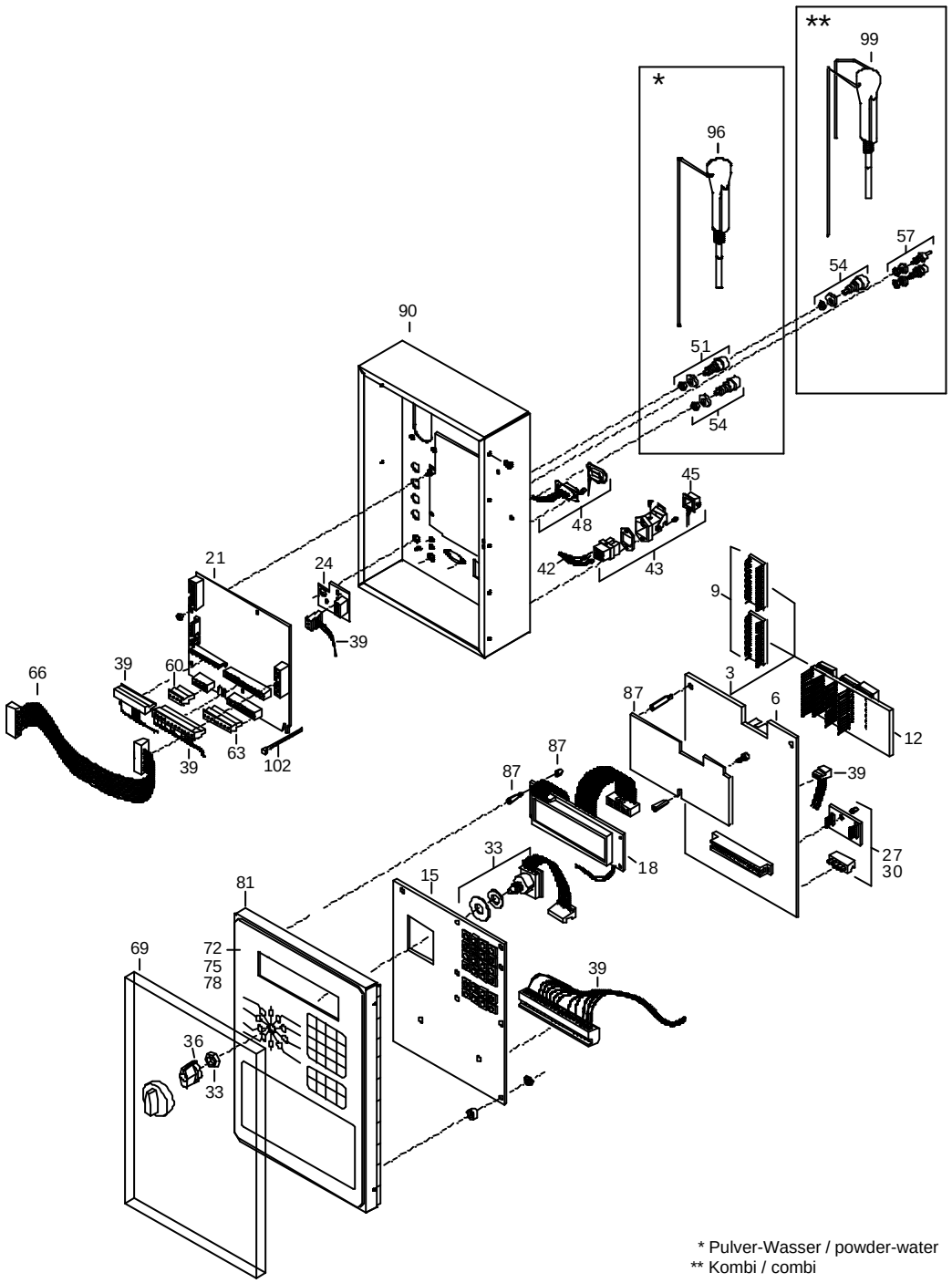
7721-0040-435 Bedien- und Steuerungsteil TAK/VDW SA2 Plus
operating and control unit TAK/VDW SA2 Plus
7721-0040-436 Bedien- und Steuerungsteil TAP SA2 Plus | bis: 30.10.01
operating and control unit TAP SA2 Plus

41765 07.01



* Pulver-Wasser / powder-water
** Kombi / combi

Bedien- und Steuerungsteil
operating and control unit

41765::41765

gültig/valid ab/as of: 25.06.2001

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
003	7721-0097-064	Platine Rechnerk.f.SA2 099 m.Speicherk.u. Progr-Satz circuit card - cpu SA2 + memory + programme chip
006	7721-0091-192	Platine Rechnerk.f.SA2 099 o.Speicherk.o. Progr-Satz circuit card for cpu SA2 (w/o Programme chip, w/o memory)
009	7721-0040-333	Programmsatz f.SA2+ program set for Sa2+
012	7721-0091-193	Platine Speicherkarte (SA2) circuit card for memory (SA2)
015	7721-0040-182	Platine Tastaturkarte (SA2+) board circuit card for keyboard (SA2+)
018	7721-0040-198	Display LCD SA2+ 2x20/ 123x23mm display LCD SA2+ 2x20/ 123x23mm
021	7721-0041-398	Platine Steuerungsverteiler m.Filter (SA2 ab 07.01) board control distributor with filter (SA2 as of 07.01)
024	7721-0041-401	Platine Filterkarte SA-Elektrode board filter card SA-electrode
027	7721-0091-416	Schnittstellenkarte RS232 mit Zubehör RS232 interface card with accessory
030	7721-0091-417	Schnittstellenkarte RS422 mit Zubehör RS422 Interface card with accessory
033	7721-0060-182	Drehschalter mit Anschlusskabel (SA) rotary switch with cable for SA
036	7721-0090-020	Drehschalterknopf switch button
039	7721-0041-406	Kabelbaum Bedienteil SA2 PLUS ab 26/2001 cable form operating unit SA2 PLUS as of 26/2001
043	7721-0060-206	Steckdose für Antenne SA ME mit Drähten antenna socket for SA
045	7721-0070-220	Schutzdeckel B H-A 3DB mit Dichtung cover B H-A 3DB with sliding ring
051	7721-0071-428	Buchse 3mm BU 3400 grün mit Isolierring und Mutter socket 3mm BU 3400 green with insulating ferrule and nut
054	7721-0070-480	Buchse 4mm BU 4400S schwarz Isolierring u. 2 Muttern socket, 4mm BU 4400S black, insulating ring and 2 nuts
066	7721-0041-404	Flachbandkabel Bedienteil SA2 PLUS ab 26/2001 flat strip cable operating unit SA2 PLUS as of 26/2001
069	7721-0070-242	Bedienfeldabdeckung SA cover for control unit / SA
072	7721-0040-263	Folie-Tastatur SA2 Plus Neutral DE foil for keyboard SA2 Plus Neutral DE
096	7721-0060-093	Elektrode SA/SA2-PLUS; FE Baby Milk - 1700/mit Stecker sensor for SA
099	7721-0040-613	Doppelelektrode SA2Plus - 1700/mit Stecker double electrode SA2 Plus - 1700/with plug

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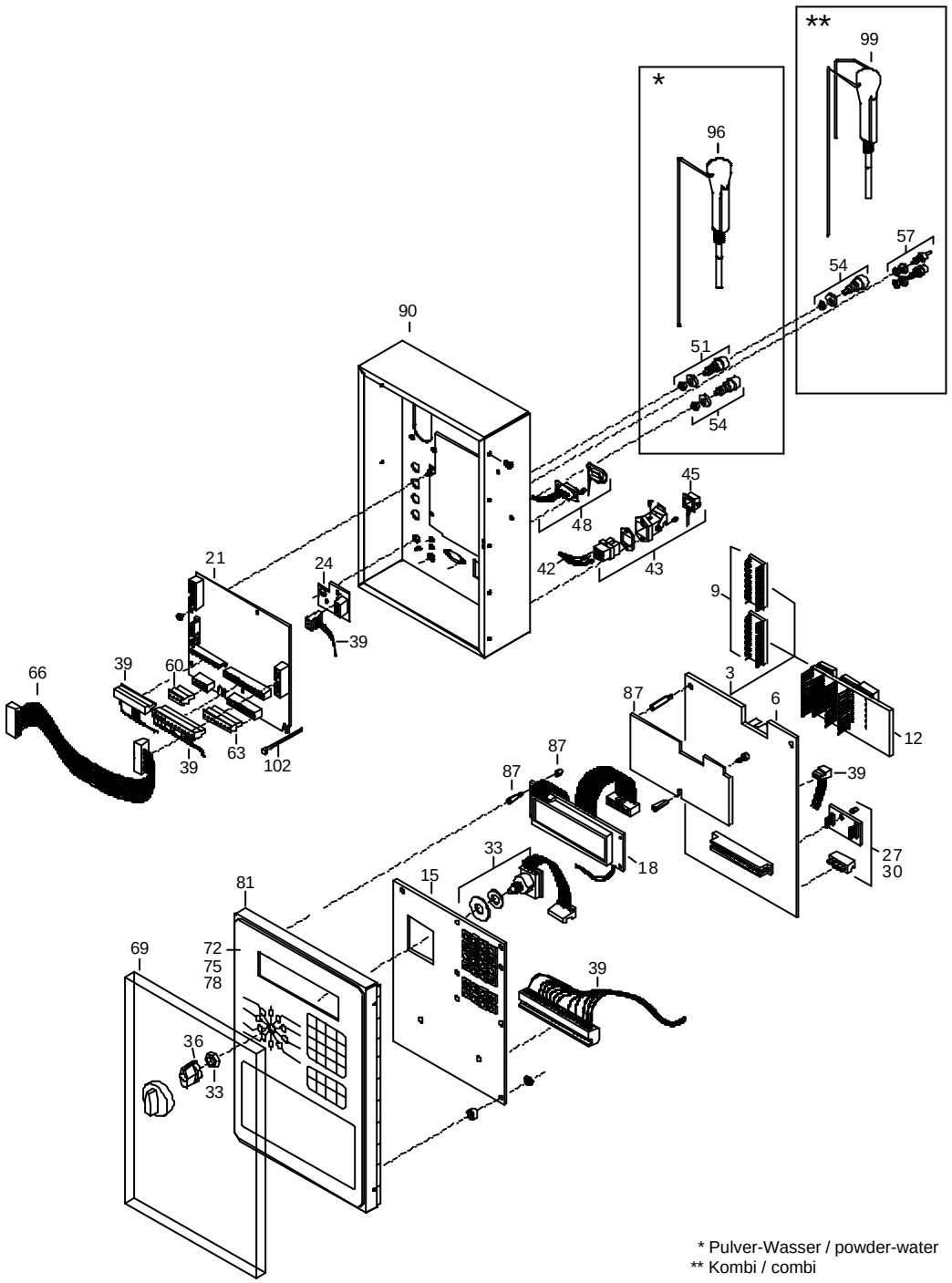
41765 07.01



* Pulver-Wasser / powder-water
** Kombi / combi

Bedien- und Steuerungsteil
operating and control unit

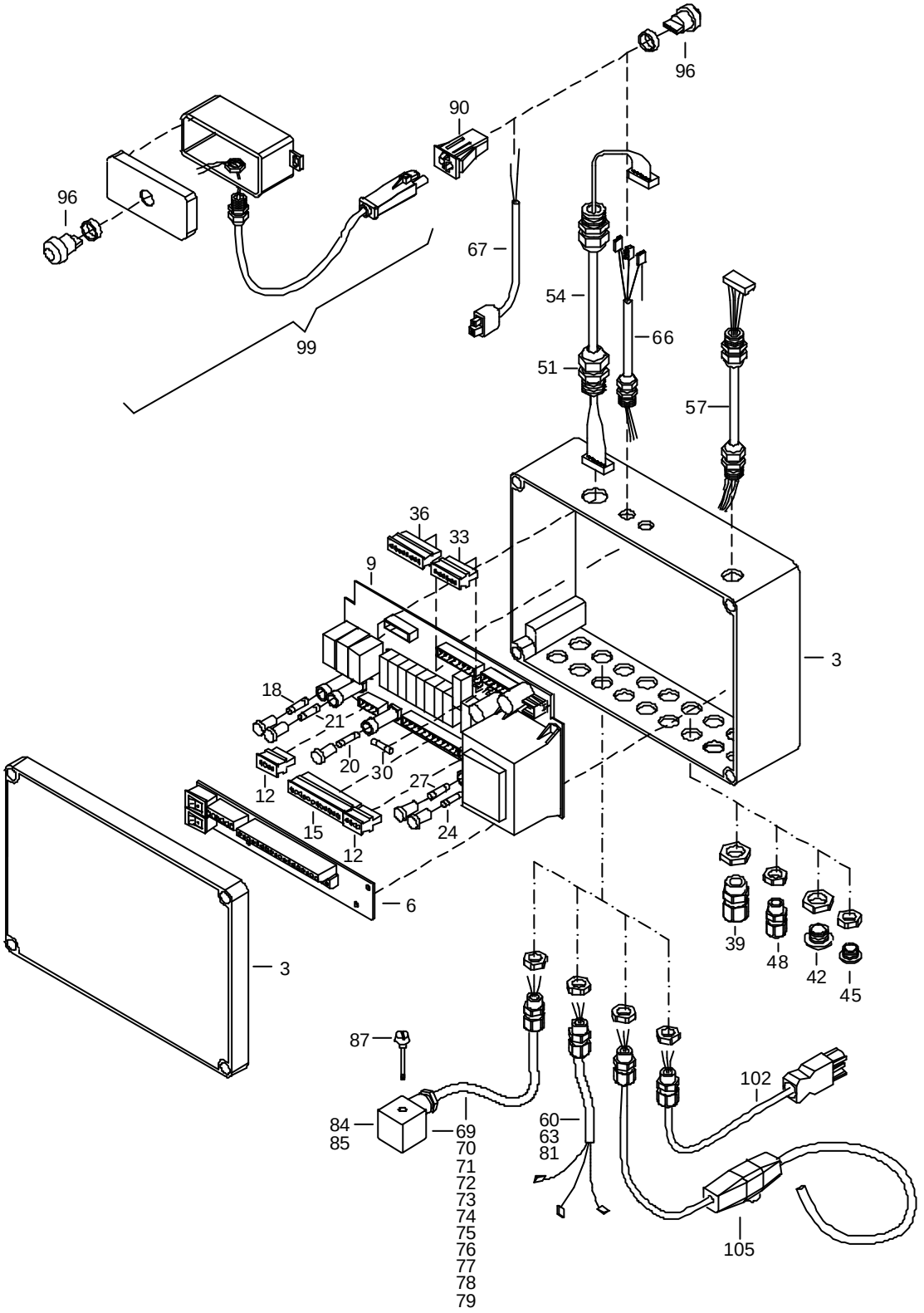
41765::41765

gültig/valid ab/as of: 25.06.2001

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
	7721-0041-765	Bedien- und Steuerungsteil TAK/VDW SA2 Plus ab 26.01 operating- and control unit TAK/VDW SA2 Plus as of 26.01.
	7721-0041-766	Bedien- und Steuerungsteil TAP SA2 Plus ab 26.01 operating- and control unit TAP SA2 Plus as of 26.01.

41034 / 09.01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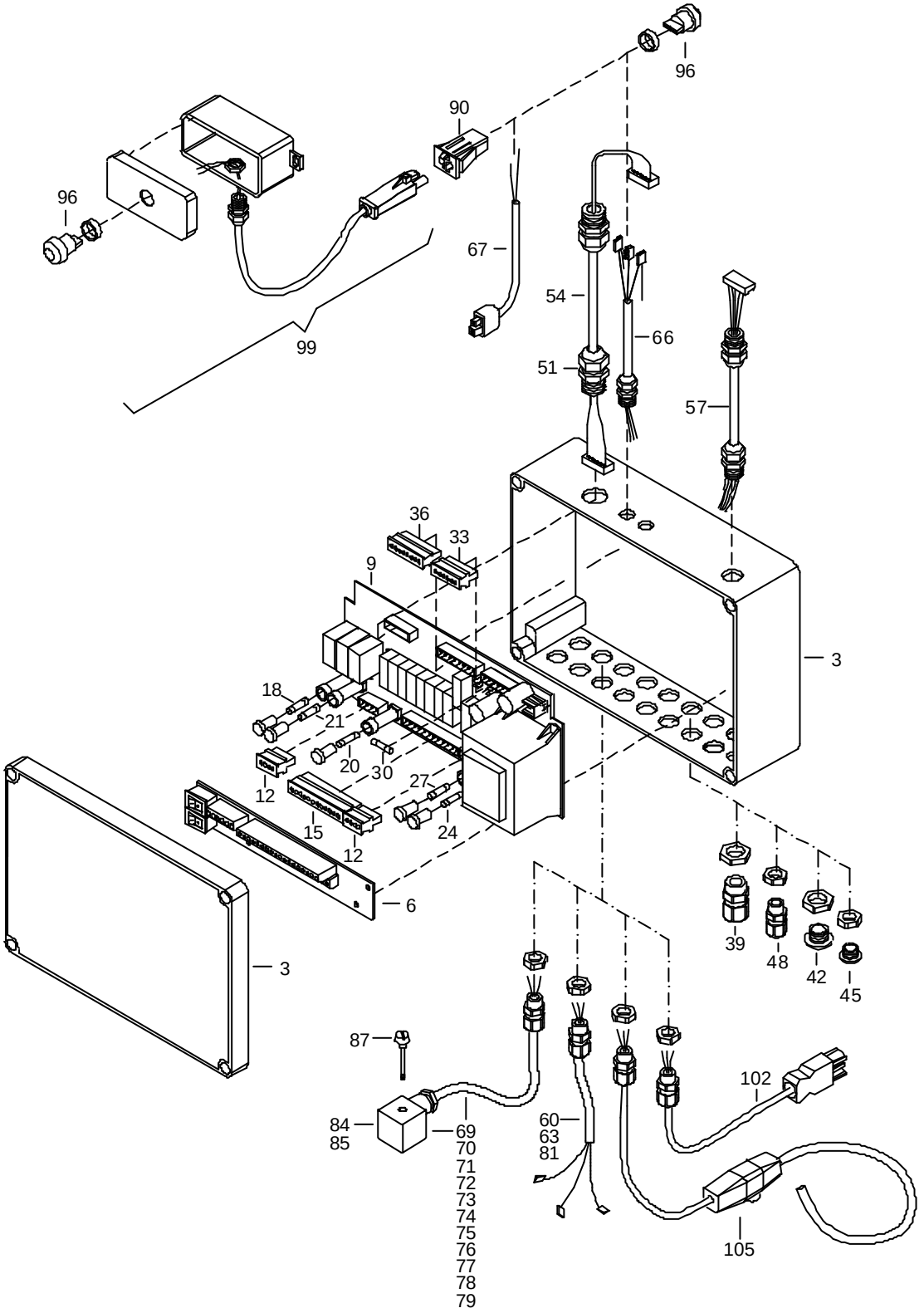
Leistungsteil
power unit

41034::41034

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
006	7721-0040-313	Platine Leistungsverteiler (SA2+ K) mit Schalter board power distributor (SA2+ K) with switch
009	7721-0040-278	Platine Leistungskarte SA2+ K board circuit card for power unit SA2+ K
018	7721-0090-108	Sicherung 4,00A träge 5x20mm fuse 4.00A (time lag) 5x20mm
021	7721-0090-071	Sicherung 2,50A mittelträge 5x20mm fuse 2.50A (normal lag) 5x20mm
027	7721-0090-069	Sicherung 1,00A mittelträge 5x20mm fuse 1.00A (normal lag) 5x20mm
030	7721-0090-064	Sicherung 3,15A träge 5x20mm fuse 3.15A (time lag) 5x20mm
054	7721-0040-239	Kabel Steuerleitung 16-polig SA2 Plus cable control line 16 poles vers. A SA2 Plus
057	7721-0040-240	Kabel Stromversorgung für Bedienteil SA2 Plus cable power supply operating unit SA2 Plus
069	7721-0040-243	Kabel Mixer SA2 Plus cable for mixer SA2 Plus
070	7721-0040-244	Kabel Pulverförderung SA2 Plus cable for powder supply SA2 Plus
071	7721-0040-245	Kabel Wasserventil BO SA2 Plus cable for water valve BO SA2 Plus
072	7721-0040-249	Kabel Tränkestandventil SA2 Plus cable for box valve SA2 Plus
073	7721-0040-251	Kabel Ablaufventil Mixer SA2 Plus cable for outlet valve SA2 Plus
074	7721-0040-246	Kabel Wasserventil WT SA2 Plus cable for water valve HE SA2 Plus
075	7721-0040-247	Kabel Milchpumpe SA2 Plus cable for milk pump SA2 Plus
076	7721-0040-248	Kabel Milchventil SA2 Plus cable for milk valve SA2 Plus
077	7721-0040-250	Kabel Spülventil WT SA2 Plus cable for circulation valve HE SA2 Plus
078	7721-0040-242	Kabel Zusatzdosierer Pulver SA2 Plus cable for doser SA2 Plus
079	7721-0041-258	Kabel Druckluftventil SA2 Plus cable compressed air valve SA2 Plus
081	7721-0040-255	Kabel Spülmittelpumpe SA2 Plus cable for detergent pump SA2 Plus
084	7721-0090-081	Steckdose GDM 3009 schwarz socket GDM 3009 black
085	7721-0090-082	Steckdose GDM 3009 grau socket GDM 3009 grey
087	7721-0090-077	Rändelschraube 35mm lang knurled screw, length 35mm

41034 / 09.01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Leistungsteil
power unit

41034::41034

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
096	7721-0010-229	Drucktaster 1-polig kurz Schliesser mit Schutzkappe push button 1-pole, short with protecting cap
099	7721-0040-475	Drucktaster manuelle Tränkeförderung SA2 Plus push button manual milk supply SA2 Plus
105	7721-0099-181	Heizkabel mit Temperatursteuerung SA/SM heating cable with temperature control Combi
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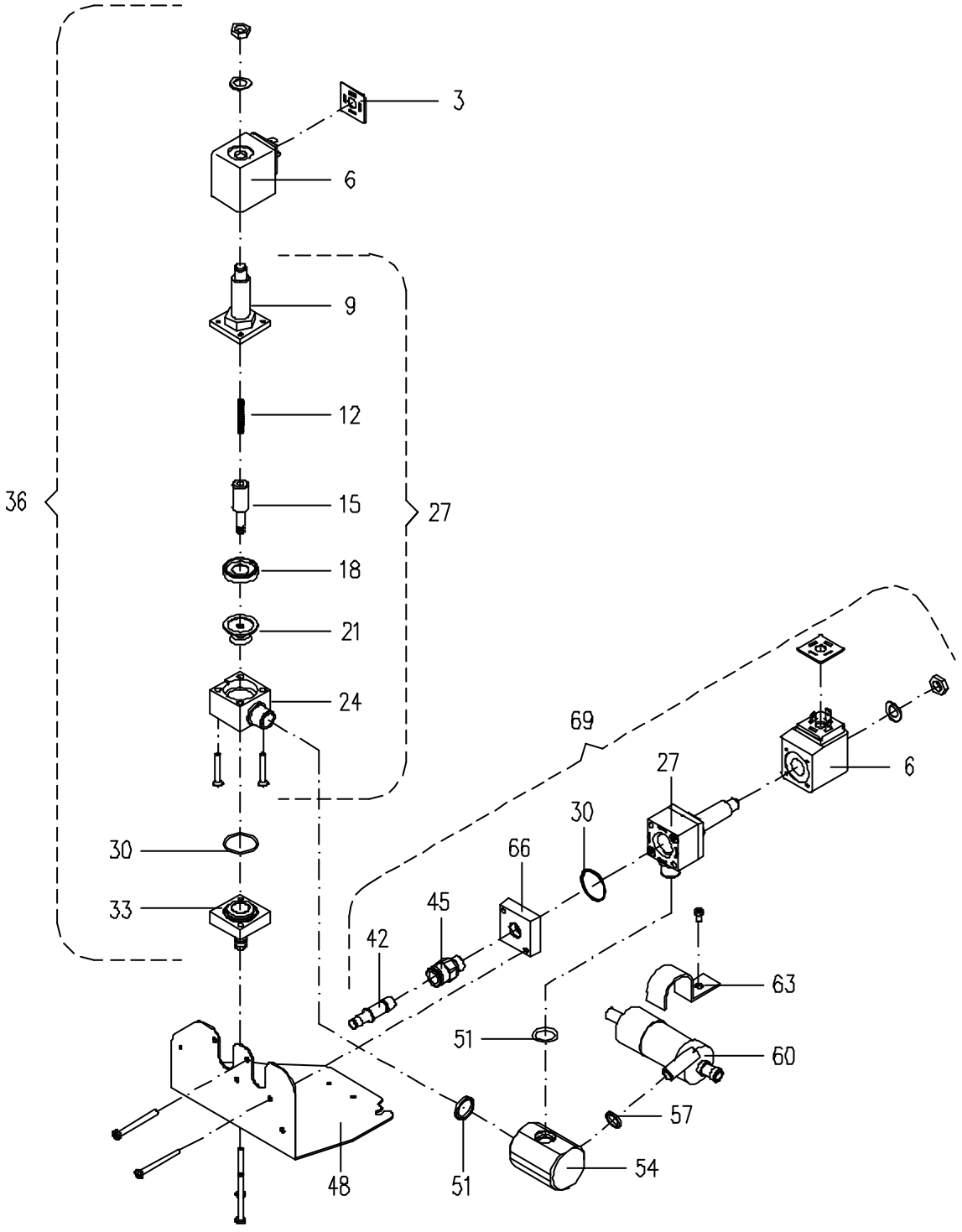
	7721-0041-034	Leistungsteil TAK5 SA2 Farmer power unit TAK5
	7721-0041-162	Leistungsteil TAK5 SA2 Japan power unit TAK5 Japan
		Leistungsteil TAK5 SA2 Profi power unit TAK5 SA2 Profi

40476 / 10.00



Absperrventil+Spülventil+manue
stop valve+circ.valve+manual feeding pump TA5 w.push-button

40476::40476

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
003	7721-0090-079	Dichtung GDM 3-17 seal GDM 3-17
006	7721-0091-188	Magnetspule 220V 50/60Hz/91711/91068 2/2 Wegeventil solenoid coil 220V 50/60Hz
009	7721-0097-676	Ventilteil - Plungerrohr mit Messingplatte valve part - plunger tube with brass plate
012	7721-0097-680	Ventilteil - Feder valve part - spring
015	7721-0097-681	Ventilteil - 97145 Plunger valve part - plunger for item 97145
018	7721-0097-678	Ventilteil - Stützring valve part - supporting ring
021	7721-0097-679	Ventilteil - Membrane valve part - diaphragm
024	7721-0097-677	Ventilteil - Ventilkörper valve part - valve body
027	7721-0097-145	Magnetventilgehäuse 91711 2/2 Wege-Ventil geschlossen solenoid valve body, 2/2-way valve, default closed,
030	7721-0098-223	O-Ring 26x1,2 NBR 70 Shore (Gruppenventil) 0-ring 26,0x1,3mm
033	7721-0097-146	Magnetventilgrundplatte 91711 mit Schlauchtülle und O-Ring solenoid valve plate, with nozzle and o-ring
036	7721-0091-711	2/2-Wege-Ventil, geschlossen 230V 50/60Hz 7,0mm mit Tülle n. 2/2-way valve, default closed, 230V 50/60Hz with nozzle
042	7721-0040-550	Stecker f. 1/4" Steckverschraubung ID:7 L:45 AD:9,0mm plug for 1/4" plug-type connector ID:7 L:45 ED:9,0mm
045	7721-0040-549	Steckverschraubung 1/4" AG; ID:7,5/10 L:30mm plug-type bolting 1/4" AG; ID:7,5/10 L:30mm
051	7721-0091-626	O-Ring 16,0x2,5mm NBR 70 Shore 0-ring 16,0x2,5mm NBR 70 Shore
060	7721-0098-345	Handgesteuerte Antränkpumpe mit 23cm Kabel Hand operated feed-conveying pump
069	7721-0040-547	2/2-Wege-Ventil, geschlossen 230V 50/60Hz mit Steckverschr. 2/2-way-valve, closed 230V 50/60Hz with plug-type bolting

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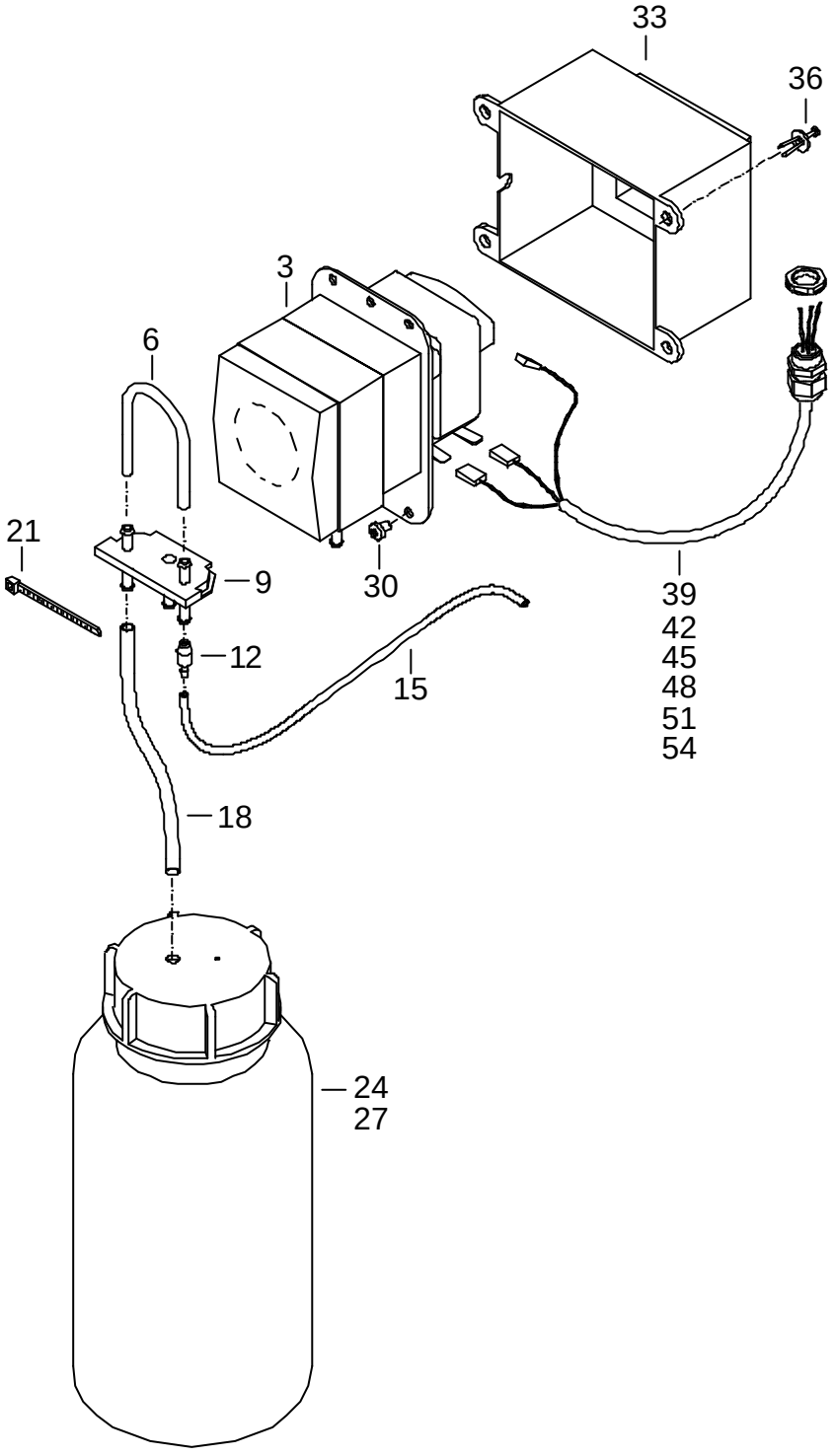
Absperrventil+Spülventil+manuelle Antränkp. TA5 mit Druckt.
stop valve+circ.valve+manual feeding pump TA5 w.push-button

40605 / 10.01



Spülmitteldosierpumpe TA5/TA6
detergent dosing pump SA2+/SM2+

Teilenummer: 7163-9983-010 40605::40605
Part-No. : 7163-9983-010
Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. / *Item*	Teile-Nr. / *Part-No.:*	Bezeichnung / *Description*
003	7721-0040-463	Dosierpumpe DSP 230V mit Halteblech dosing pump DSP 230V with holding plate
006	7721-0041-350	Schlauch 4,8x1,6mm PS 140Ph Länge: 14cm Flüssigdosierer-DSP hose 4,8x1,6mm PS 140Ph length: 14cm additive dispenser-DSP
009	7721-0041-411	Schlauchhalter mit Überlauf für Flüssigdosierer hose-coupling support with overflow f. liquid additive doser
024	7721-0099-044	Flasche 1,5l Weithals mit Schraubverschluss bottle 1,5l wide-necked with screw fastening
039	7721-0040-255	Kabel Spülmittelpumpe SA2 Plus cable for detergent pump SA2 Plus
045	77210040-880	Kabel Spülmittelpumpe SM2 cable for detergent pump SM2

Zubehör - Beipack TAK/VDW 5/6 Profi
included accessories for TAK/VDW 5/6 Profi

::41891

Die Ersatzteil-Liste stellt die verschiedenen Varianten der o.g. Baugruppe dar.
The spare-parts-list shows the different variants of the above-mentioned structural group.

Pos. *Item*	Teile-Nr. *Part-No.:*	B e z e i c h n u n g *D e s c r i p t i o n*
	7721-0070-567	Schlauchschelle 1/2" 12-20 Zebra hose band clip 1/2 " 12-20 Zebra
	7721-0010-212	Dichtungssatz für Tränkeautomaten set of seals for automatic feeder
	7721-0099-592	Schwammgummikugel (5'er-Pack) 11mm Durchm. sponge pellet, 11mm (packet of 5)
	7721-0070-522	Schwammgummikugel (5'er-Pack) 12mm Durchm. sponge pellet, 12mm (packet of 5)
	7721-0080-001	Schlauchtülle für Sauger Tüllendurchmesser 5mm hose-pipe nozzle (5mm) for teat
	7721-0040-049	Schlauch 7,0x1,8mm TPE glasklar hose-pipe 7.0x1.8mm TPE
	7721-0097-383	Schlauchreinigungspistole kompl. hose pipe cleaning pistol
	7163-9923-110	Fliegenschutzpaket SA2Plus/SM2Plus/SA2000 fly protection set SA2000